FACTORS INFLUENCING COMPLIANCE WITH SAFETY BEHAVIOR IN THE MALAYSIA FIRE AND RESCUE DEPARTMENT IN ZONE 5 SELANGOR

VIVEKANANDA A/L RAJALINGAM

Thesis Submitted to the
Othman Yeop Abdullah Graduate School of Business,
Universiti Utara Malaysia,
In fulfillment of the Requirement of the Degree of Master of Science
(Occupational Safety and Health Management)

Pusat Pengajian Pengurusan Perniagaan
SCHOOL OF BUSINESS MANAGEMENT
Universiti Utara Malaysia

PERAKUAN KERJA KERTAS PENYELIDIKAN
(Certification of Research Paper)

Saya, mengaku bertandatangan, memperakukan bahawa
(I, the undersigned, certified that)
VIVEKANANDA A/L RAJALINGAM (820095)

Calon untuk Ijazah Sarjana
(Candidate for the degree of)
MASTER OF SCIENCE (OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT)

telah mengemukakan kertas penyelidikan yang bertajuk
(has presented his/her research paper of the following title)

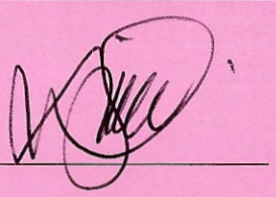
FACTORS INFLUENCING COMPLIANCE WITH SAFETY BEHAVIOR IN THE MALAYSIA FIRE AND RESCUE DEPARTMENT IN ZONE 5 SELANGOR

Seperti yang tercatat di muka surat tajuk dan kulit kertas penyelidikan
(as it appears on the title page and front cover of the research paper)

Bahawa kertas penyelidikan tersebut boleh diterima dari segi bentuk serta kandungan dan meliputi bidang ilmu dengan memuaskan.
(that the research paper acceptable in the form and content and that a satisfactory knowledge of the field is covered by the research paper).

Nama Penyelia : **PUAN NORIZAN BT. HJ. AZIZAN**
(Name of Supervisor)

Tandatangan :
(Signature)



Tarikh : **16 OGOS 2018**
(Date)

PERMISSION TO USE

In presenting this dissertation project paper in fulfillment of the requirements for a postgraduate degree from University Utara Malaysia, I agree that the University Library make a freely available for inspection. I further agree that permission for copying of this dissertation/project paper in any manner, in whole or in part, for scholarly purpose may be granted by my supervisor(s) or in their absence by the Dean of Othman Yeop Abdullah Graduate School of Business. It is understood that any copying or publication or use of this dissertation/project paper or parts thereof for financial gain shall not be given to me and to University Utara Malaysia for any scholarly use which may be made of any material from my dissertation/project paper.

Request for permission to copy or make other use of materials in this dissertation/project paper, in whole or in part should be addressed to:

Dean of Othman Yeop Abdullah Graduate School of Business
University Utara Malaysia
06010 UUM Sintok
Kedah Darul Aman

ABSTRACT

The purpose of this study is to examine whether the five critical factors of WSS dimensions on compliance to safety behavior of the Malaysian firefighter's personnel. The WSS measures five-factor distinct constructs: (a) job safety, (b) coworker safety, (c) supervisor safety, (d) management safety practices, and (e) safety program and policies. The objective of this research is to examine the relationship between job safety and compliance with safety behavior among Malaysian Firefighters in relation to safety. All those independent variables were measured on the perception of workplace safety towards the compliance of safety behavior as the determinants among 103 firefighters of various Fire Stations under Zone 5 Selangor, Malaysia. The questionnaires for the quantitative research conduct were developed from previous research by Hayes (1998). Results also suggest that safety program and policies can enhance and refine the Malaysia firefighters safety culture by focusing especially on the variables mentioned thereby increasing and strengthening safety culture and firefighter's safety behavior thereby reducing injuries and accidents.

Keywords: *Work Safety Scale, Job Safety, Coworker Safety, Supervisor Safety, Management Safety Practices, Safety Program and Policies*

ABSTRAK

Tujuan kajian ini adalah untuk mengkaji sama ada lima faktor penting dimensi WSS terhadap kepatuhan terhadap tingkah laku keselamatan anggota bomba di Malaysia. WSS mengukur lima dimensi yang berbeza: (a) keselamatan kerja, (b) keselamatan rakan sekerja, (c) keselamatan penyelia, (d) amalan keselamatan pengurusan, dan (e) program keselamatan dan polisi. Objektif penyelidikan ini untuk menentukan tahap pematuhan terhadap tingkah laku keselamatan di kalangan pegawai bomba di Malaysia berkaitan dengan keselamatan. Kesemua pembolehubah bebas ini diukur berdasarkan persepsi keselamatan tempat kerja terhadap pematuhan tingkah laku keselamatan sebagai penentu kepada 103 anggota bomba dari pelbagai Balai Bomba di bawah Zon 5 Negeri Selangor, Malaysia. Soal selidik bagi kajian penyelidikan kuantitatif telah dibangunkan dari kajian sebelumnya oleh Hayes (1998). Hasilnya juga menunjukkan bahawa program keselamatan dan polisi dapat meningkatkan dan memperbaiki budaya keselamatan pegawai bomba di Malaysia dengan memberi tumpuan khusus kepada pembolehubah yang dinyatakan , justeru dapat meningkatkan dan menguatkan pematuhan keselamatan dan pemadam kebakaran sehingga menyebabkan kecederaan dan kecelakaan.

Kata Kunci : *Skala Keselamatan Kerja, Keselamatan Kerja, Keselamatan Rakan Sekerja, Keselamatan Penyelia, Amalan Keselamatan Pengurusan, Program Keselamatan dan Polisi*

ACKNOWLEDGEMENT

First and foremost, I would like to thank god for enabling me to undertake and accomplish this task successfully. My special gratitude is to Madam Norizan Binti Hj Azizan, my supervisor of this project paper, without his guidance, support, and encouragement it would not have been possible for me to complete this final project paper which is for the fulfillment for the Masters of Science (Occupational Safety and Health Management).

I would like to also extend my thankfulness to my family and my wife for their unconditional support and love. To my colleagues and partners, thanks a lot for giving me endless moral support and encouragement to complete this final research project.

Last but not least, I must express my appreciation to the respondents particularly from the Fire and Rescue Department under Zone 5, Selangor without them this research would not have been possible in the first place.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

1.1 Introduction

In order to reduce incidents in the workplace, ones need to enhance safety performance. In safety behavior, the phrase "Behavior and accidents are what it's all about" is the most well-known. Does everybody fully understand the "Behavioral Safety" in order to reduce accidents and injuries in the workplace and also the action taken which are related to these?

According to Szubert and Sobala (2002), "firefighters might be exposed to inevitable environmental exposures, intense pressure, exposure to toxins and chemical agents while attempting to accomplish their duties". This chapter provides an overview perception of safety behavior in the Malaysian Fire and Rescue Department (FRDM).

This chapter focuses on the background of the study, problem statement, research objectives, and questions as well as the scope and limitations of the study. Specifically, the chapter also explained the significance of the study, definition of key terms and organization of the thesis. Furthermore, this study was conducted to identify and analyze the problem with regard to safety behavior among FRDM officers. The importance of reexamination on the perceptions of acceptable and unacceptable risks among the firefighters by changing their common understanding of the behavioral issue was stressed in a study done by Freaney (2011).

1.2 Background of the Study

Besides fatal injuries from the fire, the tenants of a building are also exposed to the damage on materials of the household goods and buildings. The riskiest occupation mentioned by Freaney (2011) was the occupation that caused the worker to deal with the blazing fire as compared to other occupations.

Among the main duties of firefighters are to respond to fire alarms, oil spillages, accidents, building collapses and acts of nature such as floods, mudslides and fires due to electric storms, rescue victims, control fire and extrication of casualties using various equipment and methods, use proper techniques for first aid and provide safety education to the public (Albert, 2009). While attempting to complete their firefighting duties, firefighters may be exposed to uncontrollable environmental exposures, heavy physical workloads, exposure to chemical and toxic agents, and high levels of stress (Freaney, 2011). Research on the safety behaviors of firefighters are imperative because similar to other occupations, injuries are costly. Researchers suggest that the fire service is one of the most hazardous industries based upon work-related injury rates (International Association of Firefighters, 1999; Walton & Samo, 2003).

1.2.1 Risk Factors among Firemen

Communities expect an urgent and timely response to emergencies and disasters with fully trained individuals arriving on adequately staffed apparatus. However, public knowledge of the complexities and challenges of building, maintaining and delivering such service capabilities is often transparent or invisible to those funding the services until the system fails to meet public expectations. Some

fire and emergency service organizations do not have the resources to implement advanced training programs or provide training beyond that which is minimally required for each position.

Firefighters, who are questioned in relation to their high-risk behaviors, often refer to either public or organizational expectations of selfless heroism. Such perceptions are consistent with the popular image of the firefighter as a daring individual who is willing to risk life and limb to save the life of a total stranger and who is lauded for doing so (U.S. Fire Administration, 2015).

Those with a traditional outlook often express disagreement with the emphasis that has been directed towards "acceptable risks" and "rules of engagement," claiming that they promote non-aggressive and in-effective operations. "The opposing viewpoint asserts that there are times when it is appropriate to be boldly aggressive and times to be intelligently cautious" (Brennan, 2011). The focus of this paper is to seek out areas where the level of safety in the provision of a fire and emergency service organization can be improved without diluting or lessening the critical mission of service delivery.

1.2.2 Inappropriate Risk Behaviors

Firefighters are routinely called upon to deal with situations that involve risks that could result in their death or injury or contribute to an occupational illness or disability. Several of these risk factors are inherent to the nature of the work that firefighters perform. However, the level of exposure to those risks varies depending on decisions that are made and actions that are taken or not taken when faced with a particular situation and set of circumstances. A general risk management philosophy

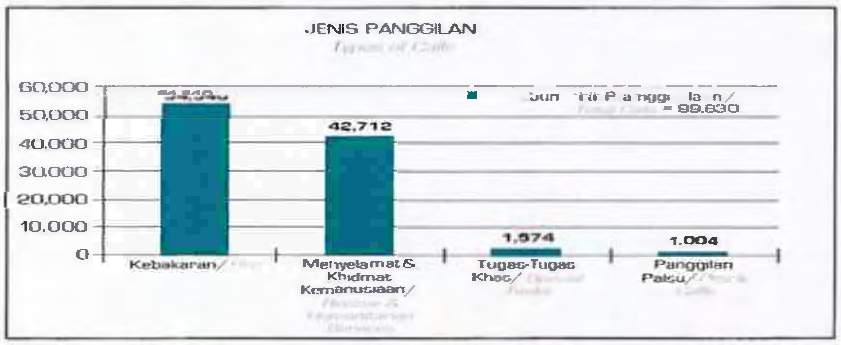
in the fire service is, risk a lot to save a lot, risk a little to save a little, and risk nothing to save nothing (U.S. Fire Administration, 2015).

Most of the discussion of risk exposure is written in the context of structural firefighting, where the concepts of offensive versus defensive strategies are easily defined. The offensive strategy places firefighters in close contact with the fire, inside the burning building and involves a certain level of inherent risk. Defensive strategy keeps firefighters outside, in what should be saved at exterior locations, to minimize risk. This concept requires some extrapolation to be applied to other emergency responses and scenes.

With regard to vehicle operations for both personally owned and agency-owned, fire and emergency service organizations should concentrate on implementing and demonstrating an effective and measurable model of operator training that advances skill sets throughout tenure as a firefighter, ensures quality and provides for operator accountability (Fahy, LeBlanc, & Molis, 2010). The focus areas of risk behavior modification are operated capability, quality assurance, and accountability.

Fire and emergency service organizations must also focus on moving towards compliance with national standards for health and wellness, fitness for duty and emergency scene rehabilitation. "In each of these cases, scenarios can present themselves where emergency responders act without a full understanding of the potential scope and fallout from their actions, leading to illness, injury or death that is out of alignment with the potential value of the chosen action" (Bruni, 2012).

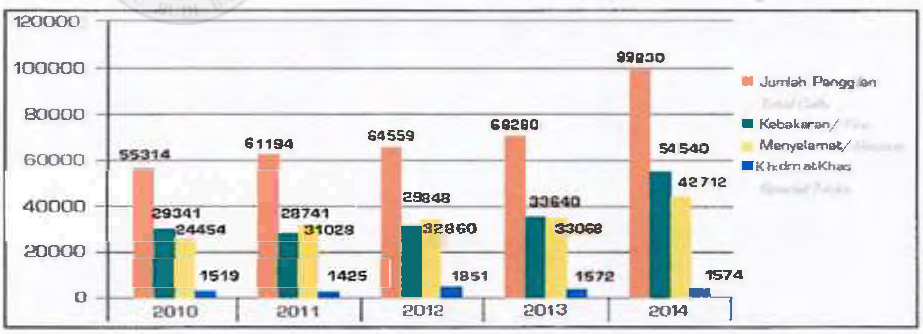
Table 1.1
Categories of Emergency Calls In 2014



Source: FRDM Annual Report 2014

Table 1.1 showed that from the overall total 99,830 calls, Fire and Rescue Department of Malaysia received 54,540 calls involving fire cases from January to December 2014. During the same period, the Fire and Rescue Department of Malaysia received 42,712 rescue and humanitarian services calls and 1,574 calls for special tasks. Unfortunately, the Fire and Rescue Department of Malaysia also receiving prank calls by 1.1% (1004) of the overall total calls.

Table 1.2
Statistical Numbers of Calls



Source: FRDM Annual Report 2014

Table 1.2 showed a statistical comparison on the number of calls for fires, rescue and special functions attended by the Fire and Rescue Department of Malaysia for a period of 5 years. In this analysis, the graph shows a pattern of an increasing number of calls per year. In the year 2014, the Fire and Rescue Department of Malaysia received the highest calls with 99,830 cases attended in the nation. A marginal increase in 2014 was attributed by two (2) major disasters that have swept across the country at the early year which were the open fire and floods in late 2014.

1.3 Problem Statement

Firefighters are injured while fighting fires, rescuing people, responding to emergency medical incidents, responding to hazardous materials incidents or training for their job. Injuries may range from minor to career ending. According to the National Fire Protection Agency, as cited in Moore-Merrell et al. (2008), firefighters were injured, strain, sprain, and muscular pain were the leading types of injuries. The health impairments and disorders determined by the job characteristics include injuries, traumas, respiratory diseases, cardiovascular diseases, lung cancer, and cancers of other sites like intestine, bladder or kidney (Szubert & Sobala, 2002).

Research suggests that 30 percent of these injuries are related to a cluster of controllable factors (Smith & DeJoy, 2014). The controllable factors that Moore-Merrell and associates focus on are behavioral related. These factors include decision making, lack of communication, standard operating guidelines and procedure breach, protocol breach, human error and lack of situational awareness. This study investigated these safety behaviors and the safety culture of fire department personnel. The investigation of the safety behaviors can provide Malaysian Fire and

Rescue Department with information that will assist in lowering injury rates. One of the ways the study will do so is by identifying the firefighter's commitment to personal responsibility for safety.

Table 1.3
Statistics of Firefighter Injury Due To Fire Incidents Cases

NO.	YEAR	TOTAL INJURY
01.	2010	82
02.	2011	81
03.	2012	152
04.	2013	165
05.	2014	389

Source: FRDM Annual Report 2014

The table above shows a statistical comparison of the number of firefighter's injury due to fire incidents cases. From the statistics, in 2010, there were 82 firefighter's injury cases. In 2011, injury rates dropped to 81 while in 2012, the rate of injury has increased to 152 which was an increase of 46.7% compared to the previous year. In 2013, the injury rate was 165 which was an increase of 7.8 %. In 2014, the levels of injury experienced by firefighters were 389, a drastic improvement of 57.5 %. This shows that the rate of injuries experienced in 2014 is very high.

Table 1.3 shows the rate of injury is increasing and the rate recorded in 2014 was 389 total cases of injuries among firefighters. The purpose of the present research is to identify the factor which influencing safety behavior among firefighters in the Malaysian Fire and Rescue Department.This study is important to ensure the rate of injuries among firefighters in carrying out their duties can be reduced in the future.

1.4 Research Questions

This research will attempt to answer the following broad questions regarding the factors influencing the safety behavior in the Malaysian Fire and Rescue Department:

i. Does job safety influence safety behavior?

ii. Does co-worker safety influence safety behavior?

iii. Does supervisor safety influence safety behavior?

iv. Does the management safety practices influence safety behavior?

v. Is there a relationship between safety program and policies with compliance safety behavior?

1.5 Research Objectives

The objective of this research is to examine the factors influencing safety behavior in the Malaysian Fire and Rescue Department. It will determine whether all the five factors of Work Safety Scale have any influence on safety behavior among the firefighter's personal. According to this research, there are few objectives to be achieved as follows:

i. To examine the relationship between job safety and compliance with safety behavior.

ii. To determine the relationship between co-worker safety and compliance to safety behavior.

iii. To determine the relationship between supervisor safety and compliance safety behavior.

iv. To determine the relationship between the management safety practices and safety behavior.

v. To determine the relationship between the safety program and policies with compliance safety behavior.

1.6 Scope and Limitation of the Study

According to Smith and DeJoy (2014), firefighting is a profession that is prone to injuries and firefighters are not able to eliminate risk. However, through the practice of safe behaviors, firefighters can reduce the risk of serious injuries while preventing minor injuries. Minor injuries are defined as, "First-aid treatment only and treated by a physician, not a lost-time injury" (Karter, 2009). Serious injuries are separated including moderate and severe.

Moderate and severe injuries are defined as, "Lost time injuries where there was little danger of death or permanent disability and time lost injuries when there was a potentially life-threatening condition" (Karter, 2009). This research will add to the current body of knowledge pertaining to firefighters and safety behaviors. Also, this research will provide information pertaining to injury reduction among firefighters. Data collected will assist firefighters in comprehending safety behaviors and therefore can be used to create initiatives to address the unsafe behaviors issues identified. The findings of this study will make a major contribution to the practical and research aspects. In practice, this model should expand the knowledge of Fire and Rescue organizations personnel regarding the importance of employees' perceptions as an effective measurement tool to demonstrate improvement in rescue organizations.

The study focus on the significant difference in safety behaviors means among firefighters gender, race, marital status, position, the department as well as

their years of service. This study includes a small sample size which is only targeting on 'Zone 5 Negeri Selangor' fire station. Besides, the period of conducting the study is limited.

1.7 Definition of Key Terms

a) *Mild/Minor Injury*:

Minor injuries are categorized as, "... first aid only and treated by a physician, ot a lost-time injury" (Karter, 2009).

b) *Moderate Injuries*:

Moderate injuries are defined as, "... lost time injuries where there was little danger of death or permanent disability, and time lost injuries when there was a potentially life-threatening condition" (Karter, 2009).

c) *Severe Injuries*:

Severe injuries are defined as, "... lost time injuries where there was little danger of death or permanent disability, and time lost injuries when there was a potentially life-threatening condition" (Karter, 2009).

d) Fire ground:

"Fire ground operations include all tasks associated with fire suppression and incident mitigation including fire attack, water supply, command, salvage, and overhaul " (Society & Agricultural, 1985).

1.8 Organization of the Thesis

The first part of this chapter is the background of the study which consists of the definition of safety behavior, the research problem under study exists and the objectives addressed in this thesis. In chapter two, this study provides an overview of safety behavior, detail explanation on the dimension as well as the instrument. Chapter three describes the key components of performance analysis method. This chapter consists of the research framework, overview of this study such as the sources of compliance on safety behavior, independent variable, research location, population and sample, research instrumentation, the structure of the research questions and the statistical procedure. The fourth chapter is on the analysis and results of this study. The fifth chapter is the research conclusion and recommendation. The discussion in this chapter relates back to the study objectives and new findings.

CHAPTER2
LITERATURE REVIEW

2.1 Introduction

This chapter commences with an overview of previously conducted studies with an emphasis on safety behavior and its importance with regard to the fire and rescue organization. Within the context of the literature review, this study presents a review of theories, arguments, structures, comparisons and deductive listings on the current and ongoing research of compliance with safety behavior. This section also includes a description of safety, safety behavior and perception of workplace safety issues. Although variety formal research works on safety behavior have been presented to date, this study is to bridge the gap in understanding the theory of the perceived role of ethics and social responsibility of Fire and Rescue Department of Malaysia in relation to the adoption of OSHA 1994.

The term "safe" can be simply defined in terms of the level of risk. Something can be "safe" if it complies with statutory requirements or recognized design or performance criteria. For me to say, "I am safe" is to make a judgment about my perceived level of risk. Defining "safety" is not so straightforward. There is no universally accepted definition. Here are some numbers of examples:

i. The potential for the realization of the unwanted consequences of an event (Aziz, 2012).
ii. The proper handling of a substance or conduct of a task to eliminate its capacity to cause injury or to do harm (Confer & Confer, 1994)
iii. Relative protection from exposure to hazards: the antonym of danger (Hammer, 1981)

iv. The opposite of risk (Harms-Ringdahl, 1993).

v. The absence of danger from which harm could result (Van Steen, 1996).

2.2 Safety Behavior

The behavioral factor of safety refers to employee motivation and performance improvement through behavior constraints. Behavior factors base on safety provides more focus on the effort of behavior rather than results such as accidents recorded. The behavior base safety refers to the behaviors which lead to a reduction of risk behaviors and as a result reduce accidents and injuries. Safety behavior describes the behavior that contributes safety practices and activities such as that which explains the core activities that are needed to be carried out by employees during safety training and safety compliance based on occupational, safety and health requirements in preventing workplace accidents (Mahmood, 2010).The workers who have riskier behavior are commonly present in most injury situations where people are case accidents and injuries. When the accident or injury is recorded which is related to behavior, it is most likely that the similar attitude has not caused injury when previously experienced. Behavior-based safety involvement are, workers more emphasis on group observation of workers performing regular work (Moore-Merrell et al., 2008). If safety oriented programs are encouraged, works can change their behavior and mold their attitude to act safely. Safety behavior becomes the main alternative in reducing injuries at the workplace and indirectly influences the outcomes of the event before the injuries or accidents occurred (Johnson, 2003).

Williams et al. (2007) take this issue with the notion that organizational culture reflects shared behaviors, beliefs, attitudes, and values. Moreover, Findley

(2007) argued safety behavior describe safety attitudes and perceptions of an employee at a single point in time an effort to identify system weakness and opportunities for safety improvement. Despite the magnitude of the problem of behavior, it is shown that job satisfaction has not only been linked to behavior but also identified as a predictor (Omar et al., 2011). They argued that not all organizational members respond in the same way in any given situation, although there may be a tendency for them to adopt similar styles of dress, modes of conduct, and perceptions of how the organization does or should function. Beliefs, attitudes, and values about the organization, its function or purpose can vary from division to division, department to department, workgroup to workgroup, and from individual to individual. Thus, although an organization may possess a dominating 'cultural theme', there are likely to be a number of variations in the way in which the theme is expressed throughout the organization (Williams et al., 2008). According to a study cited by Windham, most firefighter fatalities can be attributed to some type of human error. "Human errors include such things as perceptions, decisions, and behaviors" (Windham, 2005). Examples of these human errors include, "lack of situational awareness, protocol breach, and lack of communication" (Moore-Merrell et al., 2008). To encourage the firefighters to comply with the safety procedures and policies either they behavior about the safety or not is a major problem faced by the department which is most of them are not followed their organization's safety's policies is the most reason (Beaver, 2015). The employer may be expected to take proactive steps by developed policies and procedures that could help to overcome the problem of hazard or threat at the workplace (Savard & Kennedy, 2013).

2.3 Empirical Studies on Safety Behavior

Previous studies have assumed that workers' attitudes and perceptions affect their behaviors. So this will increase or decrease the propensity for 'accidents' to occur (Coyle et al., 1995; Gillen et al., 2002). Several studies have examined key factors influencing the safety climate in a particular industry for example, construction (Dedobbeleer & Beland, 1991; Siu et al., 2004), manufacturing (Brown and Holmes, 1986), energy (Ostrom et al., 1993; Lee, 1996), airports (Cabrera et al., 1997; Diaz & Cabrera, 1997), road administration (Niskanen, 1994) and healthcare services (Coyle et al., 1995).

Previous research suggests that the viewpoints and perceptions of workers have a significant impact on safety performances (Coyle et al., 1995; Gillen et al., 2002). Lu and Shang (2005) used exploratory factor analysis (EFA) to investigate the safety climate in container terminal operators. However, there is a lack of empirical studies dedicated to studying factors affecting safety behavior in the Malaysian Fire and Rescue Department.

A study that revealed the similar direction of the relationship was conducted by, Hayes et al, (2000) which examined the role of perceptions of workplace safety in understanding the industrial accident process. The results of these studies have shown that perceptions of workplace safety issues are related to accident-related variables, such as accident rates, anxiety, and employee's compliance with safety behaviors.

In occupational safety, the goal is to reduce injury by taking the necessary steps and initiatives to achieve a safe place environment (Melius, 2001). The UK Fire and Rescue authorities recognized this difficulty to make the workplace safe for

firefighters and chose to approach workplace safety by focusing on making the person work safely (Jones, 2008). This approach of "taking safety to the incident" has two aspects: organizational responsibility and personal reasonability (Jones, 2008).

2.4 Workplace Safety Scale (WSS)

To accomplish this refer to Hayes (1998), a series of proposed studies were designed to develop and validate an instrument of workplace safety, the Work Safety Scale (WSS). Based on work safety literature, the measures of relationship between workplace safety and compliance with safety behavior (Smith et al., 1987; Zohar, 2003) and reviews dealing with different aspects of work safety including quality of safety programs, predictors of safety compliance behaviors and safety management. (Brauer, 1990; Cleveland, Cohen, Smith, & Cohen, 1979; Dedobbeleer & German, 1987; Murphy et al., 1993; National Safety Council [NSC], 1967; Niskanen, 1994; Petersen, 1975, 1978). A five-facet measure of work safety was proposed by current study.

The five content domains to be assessed by the WSS were: (a) Job Safety, (b) Co-worker Safety, (c) Supervisor Safety, (d) Management Safety Practices and (e) Safety Program and Policies. A five-facet approach to safety assessment was taken in the current study due to the evidence that the work safety rubric subsumes a number of different factors (Cleveland et al., 1979), including management's commitment toward safety, the quality of safety training and safety behavior of both co-workers (Guastello, 1992) and supervisors. According to Zohar (2003), the empirical findings suggested that people can distinguish among only a few facets of work safety. It may be due to the items in the current measures. The content domain sampled by these

measures may limit the number of factors that are found in a factor analysis of these scales.

Other organizational researchers who have created measures that can dependably survey numerous states of mind inside a given substance area also supported this multifaceted description of perceptions of the workplace. For instance, there is significant experimental confirmation that measures the job satisfaction which can dependably recognize distinctive features of work attitudes (Smith al., 1987). Hayes, 2000 stated that different specialists have created measures of employees' perceptions of work social support crosswise over various sources of support (e.g., supervisor, co-workers and spouse, friends and relatives).

2.5 The Relationship between Workplace Safety Scale (WSS) and Safety Behavior

The following review will briefly explore each predictor of WSS on safety behavior.

2.5.1 Job Safety and Safety Behavior

Encarta, 1999; Darby et al., 2005 mentioned that between 5 percent and 15 percent of accidents are caused by inherent job hazard and 85 percent to 95 percent are caused because of what workers do or neglect to do. Additionally, it was accounted for that there exists a monstrous relationship amongst safety and productivity; cost and suffering (Williams, 1984; Duignan, 2003; Fayad et al., 2003; Inegbenebor and Olalekan, 2002). Financial, legal and morals grounds are the possible factors of improvement in safety behaviors.

The procedure by which the corporate points are converted into a program that will accomplish the coveted safety behavior is the critical issue rather than the contention for the improvement. Health and Safety Executive, 1997; Smith et al., 1998 stated that the reason for adequate safety behavior is recognized and large perceived to be an accepted and powerful safety management system which gives the way to controlling and observing safety behavior. In 1997, more than 80 percent of organizations, revealed the safety performance through the Chemical Industries Association's Responsible Care. The program demonstrated that they had either a confirmed or a formal safety management system set up (Chemical Industries Association, 1998).

In this manner, if this was the sole basis for accomplishing worthy wellbeing conduct, these and numerous different organizations should as of now have achieved their coveted execution in view of safety behavior targets. With any administration work, in any case, execution in view of security conduct depends on the improvement of effective operational practices, which are suitable to the workplace and which are additionally seen to be fitting by the workforce actualizing them rather than just simply on administration strategies and systems. In order to recognize current qualities and shortcomings, the employers need to review and audit their management system and operational practices. At exactly that point can initiatives are produced to address and cure the source of significant residual risk within the workplace.

It is crucial for associations to learn from health and safety incidents in the workplace since such episodes get a lot of media consideration and are harming to the two individuals and the associations in which they work. Learning from incidents gives a potential answer for anticipating future safety emergencies by glancing back

at what has happened and acquiring the lesson learned and foreseeing plausible future difficulties. Sepeda, 2006 mentioned that incidents are normally a consequence of a blend of disappointments, as opposed to a single occasion. They have a tendency to be gone before by antecedents, for example, close misses and small-scale event. Inability to perceive and gain from these early flags regularly result in a bigger episode (Sanne, 2008). However, Rose (2004) mentioned that the execution of the action to improve safety will result in narrowing down the chances for direct experiential learning within organizations.

Fundamentally, in any case, what most organization are for the most part looking for is, persistent change towards an incident-free working environment, yet when estimating lagging indicators – they are just checking our safety behavior level at the last stage (the numbers of fatalities, wounds, diseases and what rate do they encounter these in their task). Rather, they have to inspect the procedures that prompt these disappointments and screen how viable their control system is in keeping these negative results. Eventually, they will get the improvement picture or the proactive measures set up to diminish these results and hazard, and in this manner the utilization of driving or positive performance measures (PPMs) must be suggested. The aspect of how well as opposed to how poor safety behavior is including all workers will be highlighted in enhancing safety, creating a safety culture and achieves "ownership".

2.5.2 Co-worker and Safety Behavior

During the turbulent times facing contemporary organization, the ability to be both receptive and responsive to change has become paramount. A number of factors can facilitate an organizational capacity for change including the work context in

which change behavior occurs (Porras & Robertson, 1992). Organization climate is an important contextual component for shaping employee actions (Litwin & Stringer, 1968) including employee change-related behavior. A conceptual change process framework (Porras & Robertson, 1992), citing that employee cognitions mediate in work context factor and change behavior, suggests that employee climate perception, or psychological climate (Jones et al., 1974), should play an integral role in the change process.

Thus, an issue of vital importance is how perceptions of organization change climate are shared among employees. The knowledge of worker's risk perception and its attitude concerning safety is needed for the development and understanding of safety behavior (Williamson et al., 1997). On the other hand, the safety culture seems to have a significant effect on risk safety behavior (Rundmo et al., 1997). In this respect, Pedro and Miguel (2003), in a study carried out in occupational environments, concludes that workers with more evident risk safety behavior are the ones who have a lesser benefits perception, who have found lesser social support and mainly the one who have had bigger barriers to compliance safety behaviors. These barriers are generally, related to how organizations face and deal with occupational safety, or in other words, by their own safety culture. The organization's capacity in dealing tumultuous circumstances is vital and the ability to be both receptive and responsive to change cannot be avoided. The capacity for change including the work context depends on a number of factors that eventually lead to change of behavior in an organization (Porras & Robertson, 1992).). In this respect, Pedro and Miguel (2003), in a study carried out in occupational environments, concludes that workers with more evident risk behavior are the ones who have a lesser benefits perception, who have found lesser social support and mainly the one who have had bigger

barriers to compliance behaviors. These barriers are generally, related to how organizations face and deal with occupational safety, or in other words, by their own compliance with safety behavior.

2.5.3 Supervisor Safety and Safety Behavior

An immediate connection between management practices and employee climate perceptions was found by Schneider and Bowen (1985). Weisbord (1976) believed that leaders may impact organizational change by creating associations with worker and participating in safety behavioral practices that determine climate change as added by Burke and Litwin, (1992). Both the idea of the relationship and the supervisor climate views, impact the employee change compliance with safety behavior, Supervisor-employee relationship quality, and employee change safety behavior perceptions. This is due to the fact that it centers particularly on the nature of the supervisor-employee dyadic relationship and speaks to a transformational type of leadership as mentioned by Graen and Uhl-Bien (1995). Leader-Member Exchange (LMX) approach gives a possibly valuable structure to this line of inquiry. Graen and Scandura, 1987 stated that the LMX hypothesis places that supervisors take part in the separated relationship among the employees that develop after some time and through social trade. Thus, the supervisors build up a dyadic relationship described by differing quality levels running from a highly interactive, interpersonally supportive association, termed a high LMX dyad, to a less interactive, very formal association, termed a low LMX dyad. In light of the five change condition looked into before, the depiction of a change-helpful atmosphere offers help for a tie amongst LMX and employee experiences of a changing climate.

Task-related perception can be shaped through meaningful gestures from the supervisors as recommended in previous research by Tierney (1999). Kozlowski and Doherty (1989) recommend that the supervisor-employee relationship may impact employee climate perceptions by means of shared interpretations and Burke and Litwin (1992) refer to a study (Bernstein, 1978) in which supervisors' view of team safety behavior affected individual employee perceptions. In an organizational context, there is probably going to be a variety among supervisor in terms of safety behavior perceptions. The level of quality of team relations is defined through the degree of intra-group cohesiveness, cooperation, collaboration, interpersonal support or teamwork that present among group peers. The nature of the relationship employees share among their colleagues ought to likewise shape their everyday work encounters as supported by the rationale displayed for the LMX impact. Seers (1989) stated that inter-member relational quality ought to show some of an indistinguishable trait from the LMX relationship, hence five conditions noted before by Porras and partners should also be attached as change conducive.

An ongoing model by Jones and George (1998) shows that when engaged with a quality relationship with group peers, people are more disposed to exhaust their role or responsibility limits, upgrade their level of behavioral involvement, and oppress their needs for those of the group. According to Jones and George (1998) "members may be more apt to engage in behaviors entailing a certain amount of calculated risk and deviation if it were for the welfare of the team. Another hallmark of cooperative team member relation is an enhanced level of mutual trust and the interpersonal support. A safety net will be provided by the solid supportive nature of such groups and enable those to take part in change safety behaviors within their jobs.

2.5.4 Management Safety Practices and Safety Behavior

Effective safety management is the crucial thing in managing the interaction between system and people. Herbert W. Heinrich, an early pioneer of accident prevention and industrial safety noticed that 88 percent of industrial accidents are caused by human (Goetsch, 2002). A more prominent consideration is currently being guided by looking at the behavioral causes of technological failures, which is now widely called "human error" since human factors play a significant role in the safety behavior (Donald & Young, 1996). As stated by Beeknerhagen (2003) "many researchers now recognize the importance of a strong safety culture in ensuring both the organization and employee achieve a high standard of safety in the workplace".

Safety behavior depends not simply on administration strategies and techniques but rather on the improvement of viable operational practices, which are proper to the workplace and which are likewise seen to be fitting by the workforce implementing them. In order to recognize current qualities and shortcomings, the employers need to review and audit their management system and operational practices. Only then, initiatives are produced to address and cure the source of significant residual risk within the workplace. According to Herbert W. Heinrich (1950), effective safety management is a vital concept in the management of interactions between systems and people.

Health and Safety Executive (1997) declared that employee co-operation and management commitment are the main factors for achieving effective safety management. Under the Health and Safety (Consultation with Employees) Regulations 1996 and the Safety Representatives and Safety Committees Regulation 1977 (Health and Safety Executive, 1996), it is a legal requirement for the employers

to have consultations with the employees on health and safety issues. Numerous associations interpret this lawful prerequisite for an interview with employees to be the same as employee co-operation, while the activities are two very separate issues. The lawful prerequisite, with respect to employee consultation, relate exclusively to employees having the chance to talk about and remark on management activities and initiatives. Employee cooperation includes employees being effectively participated in management especially in decision making.

2.5.5 Safety Program and Policies

According Lu and Yang (2010) stated: "safety policy refer to clear mission, responsibilities, and goals in order to set suitable standards of behavior for employees, and establishes a safety system that can correct workers' safety behaviors". Nahmens and Ikuma, (2009) cited that the study on the potential impacts of a specific concept used in Lean, continuous improvement (CI), on safety outcomes and shows results of an empirical analysis from an industry-wide survey of industrialized homebuilder on safety outcomes and CI programs. The study analysis focused on 67 of 141 responses from builders in the U.S that provided information on the use of CI programs. Nearly half of the survey respondents (62 homebuilders) use CI programs. The analysis showed that the presences of CI programs are associated with significantly lower injury incidence rates as compared to builders without CI programs. However, the presence or absence of CI programs did not result in significant differences in total OSHA recordable cases, cases with restricted or transferred employees, total days lost and days with restriction or transfer.

Findings from this research will contribute to a better understanding of the applicability and potential benefits of Lean in the housing industry in terms of employee safety outcomes. Specific Lean strategies (CI programs) do appear to have some positive effects on OSHA incidence rates, which suggest that Lean may be beneficial not only for process improvement and waste reduction but also for improving safety in the construction industry. Great strides towards a safe work environment have been made in the construction industry. The majority of large construction companies have comprehensive safety plans, but the quality of the plan does not necessarily correlate to a company's safety performance. Written safety plan has the potential to be very effective, but companies must go beyond the safety plan and create a true 'safety" culture" Hinze (1997). It is the premise of the research that the individual corporate safety culture has as much, or more, to do with the safety behavior than the safety plan.

This research identifies corporate safety culture characteristics that correlate to safety behavior. It is hypothesized that corporate safety behavior by their very nature cultivates successful safety programs. While this hypothesis seems intuitive, little research has been conducted to specifically identify and measure critical culture characteristics that influence safety. This research attempts to quantify the relationship between corporate culture and safety behavior. Using 196 questionnaire responses from three construction companies with above average safety record, the statistical relationship between corporate were collected from a fourth company but not included in the analysis as explained in the data collection section of this paper. (Molenaar, 2009) . Training plays an important role in safety. Harvery et al. (2000) conducted a study on effectiveness of training programme might result in the changing the safety attitudes and behavior for all workers. The purpose of this study

was conducted to measure the usefulness of training to transform safety behavior and attitudes within a highly regulated environment and its objective was to investigate on safety culture change following the post training intervention for all workers in a highly regulated work ambience. The dependent variables of the study were changing attitudes and safety behavior among workers.

In a related study (Abdullah et al, 2008) examined the perception of employees regarding the management of Occupational Health and Safety (OHS) in public hospital in Malaysia. 418 employees from three state hospitals in the northern region of Malaysia participated in this study and that gave a response rate of 43.15%. Data was collected using a set of questionnaires which consists of variables including safety satisfaction and feedback, safety communication, role of supervisor, work pressure, training and competence, management commitment, safety involvement, safety objectives, safety reporting and leadership style. Data analysis was done using descriptive statistics, t-test, one-way ANOVA, Pearson correlation and multiple regressions. Findings showed that employees perceived safety reporting as the most important dimension and work pressure as the least important component in the OHS practices in their workplaces. Findings suggested that there was a significant positive correlation between safety satisfaction and feedback and safety communication, safety involvement, training and competence, safety reporting, work pressure, safety objectives, management commitment, role of supervisors and leadership style. Regression analysis revealed approximately 54.5% ($R2 = 0.545$) of variance in safety satisfaction and feedback, that was simultaneously explained by five independent variables including safety involvement, safety reporting, work pressure, management commitment, and safety objectives.

Cooper, (2004) has established an empirical link between a limited set of safety climate perceptions and actual safety behavior. It has also demonstrated how complex the overall relationship is: changes in climate perceptions do not necessarily reflect changes in levels of safety behavioral. Equally, changes in safety behavior are not necessarily reflected in safety behavioral perceptions. Such results challenge many of the assumptions that have typified previous research. The finding that compliance with safety behavior perceptions will not necessarily match actual levels of safety behavior strongly suggests that industry should focus its primary safety improvement effort on changing unsafe situations and conditions as well as people's safety behavior at all organizational levels, rather than concentrating on improving people's attitudes, beliefs and perceptions about safety. It is reductions in the frequency of unsafe behaviors and their antecedents (i.e., unsafe conditions or situations) that reduce the opportunity for accidents to occur, not perceptions about how safety is operationalized. Support for this viewpoint comes from empirical evidence that shows that hypothesized paths from attitudes and beliefs (i.e., climate perceptions) to behavior, to accidents and injuries are weak (Lund & Aaro, 2004). This is not to downplay the importance of perceptions about safety workplace for improving safety behavior. Vinodkumar and Bhasi (2010) explains that the safety rules and procedures that are well established and well documented by an organization and its enforcement towards safety management practices improves the safety behavior of employees at the workplace. In the context of safety management practices, safety rules and procedures are based on the frequent safety checks, the enforcement level of safety implementation by the management and the effectiveness of the occupational safety and health procedures and rules in the workplace in order to prevent accident from occurring.

According to Cheng et al. (2009), the path analysis results show that leadership behavior affects safety culture and safety behavior in the health care industry. Safety behavior was affected and improved with contingency leadership and a positive patient safety organization. The study suggests improving safety behavior by providing a well-managed system that includes consideration of leadership, hospital worker training courses and a solid safety reporting system.

2.6 Summary

Safety may be regarded as an attribute of only engineering set up, but, certainly entails more. The current trend in modern technological societies emphasis is safety conscious attitude on the part of employee of labour, individual employee, self-employed, designers, importers, exporters, suppliers and landlords to mention a few. Employees, therefore, need to be encouraged to become involved in the safety management continuous improvement process and a key factor here is that every employee should want to achieve overall improvement in safety behavior of the organization (Cooper, 1998).This chapter has identified literature pertaining to safety behavior outcome within various studies especially factor-factor influencing and compliance safety behavior in the first segment. The second segment reviewed the 5 factor independent variable and 1 dependent variable of work safety scale (WSS) safety program and policy, co-worker safety, supervisor safety, job safety and management safety practices with safety behavior outcome. These literatures had explored details to be followed as guidance on preparing to set this current research framework in the following chapter.

CHAPTER3

RESEARCH METHODOLOGY

3.1 Introduction

The purpose of this study was to examine the safety culture and safety behavior of firefighters of the Fire and Rescue Department of Malaysia in Negeri Selangor .This study to examine the relationship between job safety and compliance with safety behavior practiced by professional firefighters. They completed surveys based on their perceptions of the safety in workplace and their safety behaviors. This chapter also discuss on the methodology used to collect data and information on the previous study. The dependent and the independent variables will be defined and explained operationally and conceptually. Further information will also be given on the instruments scale, population, units of analysis and data analysis of the study.

3.2 Research Framework

A study that revealed similar direction of relationship was conducted by Hayes et al (1998) examined the role of perceptions of workplace safety in understanding the industrial accident process. The results of these studies have shown that perceptions of workplace safety issues are related to accident-related variables, such as accident rates, anxiety, and employee's compliance with safety behaviors.

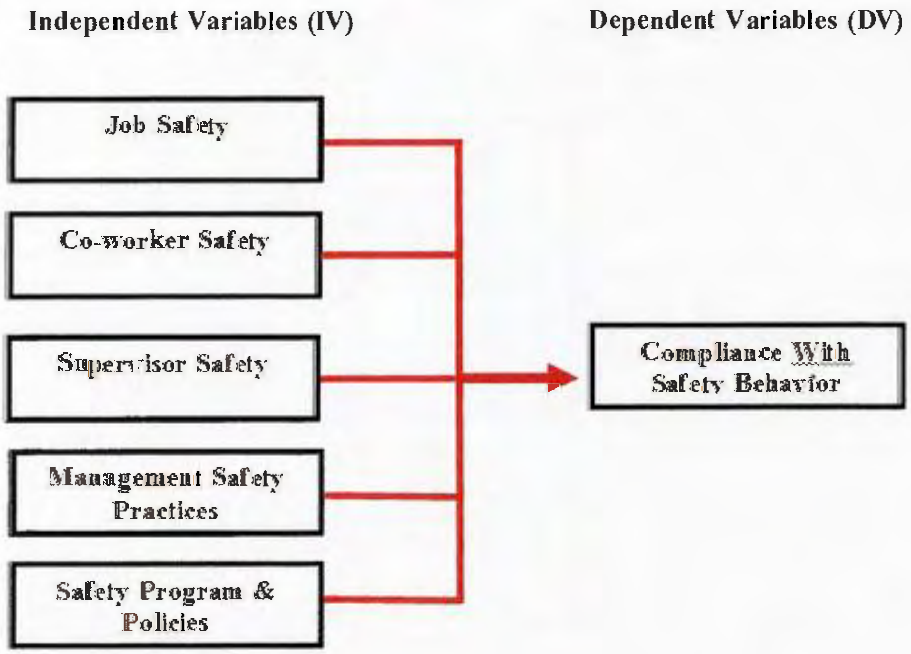


Figure 3.1: Research Framework

From the review of the main existing and emerging safety behavior frameworks in the Malaysia Fire and Rescue Department, we know that safety behavior is a single dimensional construct. This study was conducted to investigate the influence of Work Safety Scale (WSS) on compliance with safety behavior.

The framework of this study has proposed job safety, co-worker safety, supervisor safety, management safety practices and safety program as independent variables and compliance with safety behavior as dependent variable. All those variables examine the relationship between safety workplace towards the compliance with safety behavior being the determinants. The reason for integrating factors influencing compliance with safety behavior, is as it supports human factors in control of human error, and achieve to maximum standard of safety, it appears the

role of management practices that are also an important factor in achieving the safety behavior (R.M. Tavares, 2009).

3.3 Research Design

Type of research according to descriptive approach by using Quantitative data analysis and statistical base Correlation .A questionnaire survey was adopted as the main data collection method since this research instrument has been used in many safety behavior research studies (Flin *et al.*, 2000).

In the unit of analysis by firefighters of FRDM under Zone 5 Selangor, the respondents were asked to rate based on Work Safety Scale (WSS) questionnaire survey using a five-point Likert scale where '1' corresponded to 'strongly disagree' and '5' represented 'strongly agree'. The questionnaire design stages followed those outlined by Hayes *et al* (1998) and were prepared in dual language (English and Bahasa Melayu) to provide a better understanding to the respondents. The questionnaire's items were judged to be relevant and minor modifications were subsequently made to the wording and examples provided in some measurement items, which were finally accepted as possessing content validity. The refined measurement items were included in the questionnaire survey.

3.4 Operational Definition

i) Safety Behaviors

Safety behavior is the "adherence to established safety practices and procedures (e.g. the wearing of personal protection equipment, not taking unsafe shortcuts)" (Hofmann & Morgeson, 2010).

ii) Job Safety

A job safety is a procedure which helps integrate accepted safety and health principles and practices into a particular task or job operation. In a workplace, each basic step of the job is to identify potential hazards and to recommend the safest way to do the job (Aziz, 2012).

iii) Co-worker Safety

Safety of co-workers refers to the provision in applying safety environment, safe equipment and safe procedures in the workplace in order to ensure other co-workers' health and safety. While organizations certainly have a moral obligation to ensure the safety of co-workers, an unsafe workplace can also have serious legal and financial consequences for employers (Gyekye, 2014).

iv) Supervisor Safety

Supervisor safety refers to assist in the coaching and implementation of the workplace safety. Ensure that all incidents are reported immediately. Supervisor Safety will be responsible for providing support to the top management and co-workers and mainly be a leader as well as coordinator in safety requirements in workplace (Gyekye, 2014).

v) Management Safety Practices

Safety management practices are the policies, strategies, procedures and activities implemented or followed by the management of an organization targeting safety of their employees (Vinodkumar, 2010).

vi) Safety Programs and Policies

It refers to organization and worker together fulfilled the requirement of safety in workplace when organizing safety training and safety programs to ensure the safety in workplace is presented (Ishak et al., 2016). Safety policy refer to clear mission, responsibilities and goals in order to set suitable standards of behavior for employees, and establishes a safety system that can correct workers' safety behaviors (Lu & Yang 2010).

vii) Compliance With Safety Behavior

Safety compliance behaviors are vital in maintaining safety in the workplace, and include behaviors such as using the appropriate personal protective equipment, and following standardized operating procedures (Neal and Griffin, 2000).

viii) Firefighter

Main duties of a firefighter include respond to fire alarms, oil spillages, accidents (automobile, industrial, aviation and ship), building collapses and acts of nature (floods, mudslides and fires due to electric storms), rescue victims,control fire and extrication of casualties using various equipment and methods (axes, water, chemical extinguishers, ladders, vehicles, boats, etc) ,use proper techniques for first aid and provide safety education to the public (George, 2007, Bateman, 2007).

3.5 Measurement of Variables/Instrumentation

The purpose of the present research is to identify the five critical factors of WSS dimensions on compliance to safety behavior of the Malaysia firefighter's personnel and validate a scale of perceptions of the safety workplace. A 50 - item instrument

that assesses employees' perceptions of workplace safety, the Work Safety Scale (Hayes *et al*, 1998) was constructed and validated using five independent samples. The results showed that the WSS measures five factor distinct constructs:

i. Job Safety

ii. Co-worker Safety

iii. Supervisor Safety

iv. Management Safety Practices

v. Safety Programs and Policies

Each of these scales has a high degree of internal consistency across the samples. WSS subscales were logically related to job stress, psychological complaints, physical complaints, and sleep complaints. The results of the exploratory factor analysis suggest that employees' perceptions of workplace safety, as measured by the WSS, are single dimensional.

There are various set of questionnaire in measuring safety behavior since the study deal with firefighters who are very busy with their own task. The study preferred to use a modified version of design stages followed those outlined by Hayes *et al* (1998) and were prepared in dual language (English and Bahasa Melayu) to provide better understanding to the respondents.

i. Section 1 demographic factors of the questionnaire focus on these including respondents' age, length of services, gender, title, monthly gross income, and education level. – (nominal & ordinal measurement scale).

ii. Section 2 the research instrumentation measure the dependent variables and independent variables based on the WSS questionnaire.

iii. Dependent Variables - 5-point Likert scaling

(e.g., "I use all the necessary safety equipment to do my job," 1 = *strongly disagree*, 5 = *strongly agree*).

iv. Independent Variables - 5-point Likert scaling

(e.g., "I voluntarily carry out tasks or activities that help improve operational safety"1 = *strongly disagree*, 5 = *strongly agree)*.

Table 3.1

Instructions for Completion and Sample Items from the Work Safety Scale

Scale	Items
Think about your job you indicated above. Do you agree or disagree that each of the following words or phrases describes your job? Job Safety (29 items)	*Dangerous* *Safe* *Fear for health* *No time for safety*
Think about the people you work with. Do you agree or disagree that each of the following words or phrases describes these people? Co-worker Safety (22 items)	*Careful* *Don't care about other's safety* *Follow safety rules* *Encourage others to be safe*
Think about your immediate supervisor. Do you agree or disagree that each of the following words or phrases describes immediate supervisor? Supervisor Safety (22 items)	*Promotes work safety* *Keeps workers informed of safety rules* *Enforces safety rules* *Involves workers in setting safety goals*
Think about your management. Do you agree or disagree that each of the following words or phrases describes your management? Management Safety Practices (25 items)	*Cares about safety of employees* *Sets up unsafe system* *Repairs damaged equipment quickly* *Doesn't care about safety problems*
Think about your safety program at work. Do you agree or disagree that each of the following words or phrases describes this safety program? Satisfaction with the Safety Program (26 items)	*Worthwhile* *First-rate* *Doesn't apply to my workplace* *Too general*

Source: Hayes et al (1998)

3.6 Data Collection

This study involves quantitative measure to determine the data collected. Apart from that, there are approximately 54 firefighters involved per day and the data collected within 2 working days.

3.7 Sampling

By using simple random sampling, each individual is chosen entirely by chance and each member of the population has an equal chance of being included in the sample. 108 questionnaires distributed (Based on name list given by each Fire Station's by Officer in Charge).

3.8 Population

The population refers to the entire group of people, events or things of interest that the researcher wishes to investigate. It is the group of people, events or things of interest for which the researcher wants to make inferences based on sample statistics. A survey methodology was selected to collect data regarding organization safety behavior because it offered the best opportunity to capture a cross section of the beliefs, values, and behaviors in multiple trades and appointments in a timely and efficient manner. It is done by carrying out a questionnaire survey to collect data for testing the safety behavior model and determining the effects of safety culture on safety behavior.

Presently, there are approximately 13,000 firefighters serving in the Fire and Rescue Department of Malaysia. The Fire and Rescue Department of Malaysia in

Selangor currently has 1000 firefighters. Data will be collected from firefighters of five Fire Stations in Zone 5 Selangor, Malaysia.

The sample frame of total population (N) in Zone 5 Selangor is 150 and 108 questionnaires will distributed to firefighters for survey base on Krejcie & Morgan (1970).

Table 3.2
Sample size determination based on population (Krejcie and Morgan, 1970)

Table for Determining Sample Size of a Known Population									
N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	354
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	191	1200	291	6000	361
45	40	170	118	400	196	1300	297	7000	364
50	44	180	123	420	201	1400	302	8000	367
55	48	190	127	440	205	1500	306	9000	368
60	52	200	132	460	210	1600	310	10000	370
65	56	210	136	480	214	1700	313	15000	375
70	59	220	140	500	217	1800	317	20000	377
75	63	230	144	550	226	1900	320	30000	379
80	66	240	148	600	234	2000	322	40000	380
85	70	250	152	650	242	2200	327	50000	381
90	73	260	155	700	248	2400	331	75000	382
95	76	270	159	750	254	2600	335	1000000	384

Note: N = Population Size; S = Sample Size *Source: Krejcie & Morgan, 1970*

3.9 Data Collection Procedures

This research uses the questionnaire survey research method to collect or gather data by asking respondents to answer the questions provided. In doing so, an official letter to the commanding officer requesting permission to conduct a survey

was sent. Subsequently, the survey was conducted by gathering all the respondents required on a specific agreed date. The questionnaires then were distributed and answered by all the respondents within two days. Questions were administered personally where it was confined to a local area where respondents were to respond to the questionnaires within a limited period. The questionnaire is intended to identify perceptions on the implications of Work Safety Scale (WSS) elements towards their safety behavior. In addition, secondary data will be collected through the Internet and also from the library that provides the information needed. 108 questionnaires will distributed to firefighters but only 103 questionnaires were returned 5 respondents did not reply despite several attempts to contact them.

3.10 Techniques of Data Analysis

The collected data from the respondents was analyzed with Statistical Package for Social Sciences (SPSS Version 22). The results present the descriptive statistics in the form of graphs, cross tabulations and other figures for the qualitative data that was collected. Inferential techniques included the use of correlations and chi square test values; which were interpreted using the p-values. Values of significance were $p<0.05$ or 95% confidence level. After that, confirmatory factor analysis was performed and Cronbach's coefficient alpha was calculated. Descriptive analysis methods were used to simplify and characterize the data. The regression analysis is used to determine the compliance of safety behavior by referring measures from 50 items of WSS and 11 item of compliance with safety behavior. Further analysis includes reliability test, correlation testing among the variables was also measured in determining the respondent's reaction against safe work environment.

3.10.1 Descriptive Analysis

Descriptive analysis is the basic features of the data in a research. It provides simple summary about the data of the sample that was testes and the statistics. It describes about what the data is and what the data shows (Siti, 2016). According to Sivabalan (2015) on the other hand, descriptive analysis refers to the technique which are used to summarize huge data from target respondents or sample. This technique helps to process and transform data into useful information. In this technique, the data always display in many ways includes numerical values, pie charts and graphs (Sivabalan, 2015). For the purpose of this study, descriptive analysis were used to analyze the respondent's socio-demographic information such as the gender, age, marital status, years of working experience, level of management and et cetera. Anyhow, this analysis unable to draw any conclusion from the sample and only provides respondent's details.

3.10.2 Reliability Analysis

Reliability analysis is an indicator of a measure's internal consistency. Consistency is the key to understanding reliability. A measure is reliable when different attempts at measuring something converge on the same result (Zikmund et al., 2014). In order to find out whether the data is reliable, the collected data has been tested in order to obtain the Cronbach's Alpha and to measure the internal consistency, which is about how closely the sets of the items are related as a group. According to Edrak, Yin- Fah, Gharleghi, & Seng, (2013) the following rule of thumb can be used to describe the Cronbach's Alpha results:

Table 3.3
Reliability Description Table

Cronbach's Alpha	Reliability Description
Above 0.9	Excellent
>0.8	Good
>0.7	Acceptable
>0.6	Questionable
>0.5	Poor
Below 0.5	Unacceptable

Source: Edrak et. al., (2013)

3.10.3 Correlation Analysis

Correlation Analysis is one of inferential analysis in research studies and used to drawn conclusion by interpreting collected data (Zikmund, 2003). Basically correlation analysis is measure the changes of one variable and predicts the value of another variable. It's predicting the value of one's variable negative if decrease and positive if increase value. The values are between positive one and negative one. Sivabalan (2015) stated that if a correlation analysis shows +1 then it's considered as positive correlation between variables. However, coefficient -1 shows perfect negative correlation between variables which is the independent variable significant with the dependent variable. Besides that, the significant or strength of relationship between independent and dependent variables also determined through looking at the (*) or(**) sign in the output of SPSS.

According to Hair, Money, Samouel and Page (2007), the following rule of thumb can be used to describe the coefficient range derived from correlation analysis.

Table 3.4
Rule of Thumb for Correlation Coefficient

Coefficient Range	Strength
+/- 0.91 to +/-1.00	Very strong
+/- 0.71 to +/- 0.90	High
+/- 0.41 to +/-0.70	Moderate
+/- 0.21 to +/-0.40	Small but definite relationship
0.00 to +/-0.20	Small, almost negligible

Source: Hair et al. (2007)

3.10.4 Multiple Regression Analysis

Zikmund (2003) cited that regression is another type of inferential analysis and plays important roles to draw conclusion or analyze about the relationships between variables in the research. Basically there are two types of regression analysis which is called univariate and bivariate analysis.

The variables are jointly regressed against the dependent variables in order to explain the variance. As for analysis, a multiple regression analysis exists once there is more one indicator is together relapsed against the criterion variable. The result can be clarified once it is reached at the point when the R-square value, the F statistic and its noteworthiness level are known (Siti, 2016).

This research has adopted bivariate regression types to interpret data. In the other words, bivariate analysis refers to the multiple regressions which are applied to analyze the relationship between single dependent and other independent variables.

3.11 Summary

This study empirically examines safety culture and its effects on safety behavior from firefighter's personnel perceptions in the Fire and Rescue organization context. This study is looking into the influence of Work Safety Scale (WSS) on safety behavior of employees in an Operation unit. The variables were measured using the reliability analysis. The reliability measurements were done through Cronbach's alpha approach to check on the internal consistency for each factor. Cronbach alpha is a reliability co-efficient that reflects how well the items in a set are positively correlated to one another.

This study explains job safety as the work nature or environment that protects every worker from any unwanted accident or incidents during work. Co-worker safety is the safety concern showed among workers towards each other in performing a job. Supervisor safety can be explained by having a proper and well monitory system at work whereby management safety is an understanding of all the efforts and action taken by the management to ensure that safety measures are given priority at work. The satisfaction of safety programs are actually the judgment of workers towards the safety programs or policies carried out by the management in an organization.

CHAPTER4

RESULTS AND DISCUSSION

4.1 Introduction

This chapter is interrelated with previous elaboration stated in chapter 3 of the thesis where findings from research questions and objectives of the study were discussed. All data from the findings were analyzed using Statistical Package for the Social Science (SPSS) version 21 to acquire the outcomes. The statistical analysis performed were reliability test, correlation analysis and multiple linear regressions. Frequency analysis was executed to obtain respondents demographic characteristics.

4.2 Response Rate

Response rate, also known as completion rate or return rate is the number of people who answered the survey divided by the number of people in the sample. There were a total of 108 respondents participated. Table 4.1 stated that a total of 103 set of questionnaires was returned by the respondents where rate of response rate calculated was 95.4 %.

Table 4.1
Response Rate

No. Of Total Questionnaire	Total
Total Distributed	108
Returned Questionnaire	103
Response Rate	95.4 %

4.3 Demographic Characteristics

Table 4.2 shows the demographic characteristic of respondents. This part of the study shows the background of the demographic profile of the respondents who is involved in the current study, which is important and useful aspect to understand the segmentation of the data. The respondents profile includes of gender, marital status, race, academic qualification, designation and job specification.

This study involved 103 subjects, of whom 81.6% (n= 84) were male and 18.4% (n= 19) were female of firefighters from the Malaysia Fire and Rescue Department in Zone 5, Selangor. Majority of the personnel was expected dominated by male since these jobs require a person to handle hazardous situation such as fire blast and handling of heavy machines.

There were majority of respondents are married as they represent 55.3% from the total number of the respondents participated in the cross sectional-study. While 39 (37.9%) respondents are single, divorced and widow respondents are only 6.8 %.

As for the educational level, most of the respondent had MCE/SPMSPMV as their highest qualification and they represent 43.7% or 45 respondents. On the other hand, the second highest academic qualification of the respondents was the Diploma and Degree holder as they represent a total number of 35 respondents or 34%. There were 7 respondents or 6.8% had LCE/SRP/PMR as their academic qualification. The lowest percentage of respondents in term of academic qualification is only 4.9%, which only 5 respondent had others for their academic qualification.

The Malay was the highest race involved in this study as compared to other races, which represent 85.3% or 87 respondents. Indian respondents were 5 or 4.9%

and Chinese respondents represent a total number of 9, or 16.3%. Only 7.8% of the respondents are from other race i.e. Iban, Bidayuh, Dusun and Kadazan, which represent 9 from the total number of 80 respondents in this study.

There were majority of respondents were the Officer 68.9% or 71. While Senior Officer (KB29-KB38) represent 15 or 14.6 % . Junior Officer II represents a total number of 9, or 16.3%. The lowest percentages of respondents in terms of designation were Junior Officer I and Superior represent a total number of 2 or 1.9 %.

Finally, the respondents were from various job specifications. The highest percentage comes from the operational group with a total of 73 or 70.9 %. Subsequently is the administration group (15 or 14.6 %), crew supervisor (7 or 6.8%), drivers (5 or 4.9 %) and Officer in charge 3 or 2.9%

Table 4.2
Demographic Characteristics

Sex	*n*	%
Male	84	81.6
Female	19	18.4
Marital Status		
Single	39	37.9
Married	57	55.3
Divorced/Widowed	7	6.8
Education Level		
LCE/SRP/PMR	7	6.8
MCE/SPM/SPMV	45	43.7
HSC/STPM	11	10.7
Diploma/Degree	35	34
Others	5	4.9
Race		
Malay	87	85.3
Chinese	2	2
Indian	5	4.9
Others	9	7.8
Designation (grade)		
Officer (KB19)	71	68.9
Junior Officer II (KB 22)	13	12.6
Junior Officer I (KB 24)	2	1.9
Superior (KB 26)	2	1.9
Senior Officer (KB 29- KB 38)	15	14.6
Job Specification		
Operational	73	70.9
Driver	5	4.9
Administration	15	14.6
Crew Supervisor	7	6.8
Officer in charge	3	2.9

4.4 Reliability Analysis Results

Cronbach's alpha, α (coefficient alpha) is the most common measure of internal consistency (Cronbach, 1951). It is meant to measure reliability of how well a test measures what it should. In this study, it is commonly used when there are multiple Likert questions in a questionnaire that form a scale and intended to determine whether the scale is reliable or not (Tavakol & Dennick, 2011). In general, a score of more than 0.7 is usually acceptable.

Table 4.3 shows reliability analysis which revealed the value of Cronbach's alpha for each independent and dependent variables. The job safety, co-worker safety and safety program and policies consisted of 10 items with $\alpha = 0.773$, $\alpha = 0.749$ and $\alpha = 0.702$ respectively. Cronbach's alphas of 10 items each for supervisor safety and management safety practices were found to be highly reliable which were 0.923 and 0.948 respectively. The Compliance safety behavior was found to be in a good range (11 items; $\alpha = 0.855$).

Table 4.3
Reliability Analysis

Variables	Number of Items	Cronbach's Alpha
Independent Variables		
Job Safety	10	0.773
Co-worker Safety	10	0.749
Supervisor Safety	10	0.923
Management Safety Practices	10	0.948
Safety Program and Policies	10	0.702
Dependent Variables		
Compliance With Safety Behavior	11	0.855

4.5 The Correlation between Work Safety Scale (WSS) and Compliance with Safety Behavior

Work Safety Scale (WSS) which was developed by Hayes et al. (1998) are scales that effectively capture dimensions identified by safety experts as influencing perceptions of workplace safety. Table 4.4 shown a correlation between five dimensions in WSS variables and compliance with safety behavior. The result was shown to determine the strength of one variable to another. Job safety(r = 0.389, p< 0.05), supervisor safety (r = 0.255, p< 0.05) and management safety practices (r = 0.227, p< 0.05) were significantly correlated with compliance safety behavior. On the other hand, co-worker safety (r =0.47, p = 0.023) had a medium correlation in compliance to safety behavior while safety program and policies had a strong correlation (r = 0.67, p = 0.031) with compliance to safety behavior. However these factors were significantly correlated.

As anticipated,the firefighters need to comply with the safety behavior since they are working with hazard and dangerous situations. A dissection of the five subsets on the work safety scale (WSS) implicated that workers with high compliance to safety behavior did not significantly perceived their jobs to be less hazardous.

Table 4.4
Correlation between WSS Dimensions and Compliance with Safety Behavior

Dimensions	1. JS	2.CWS	3.SS	4.MSS	5. SPP	6.Compliance Safety Behavior
1.JS	1.000					
2.CWS	0.150**	1.000				
3.SS	0.489**	0.249**	1.000			
4.MSS	0.622**	0.347**	0.730*	1.000		
5.SPP	0.780*	0.268*	0.143*	0.254**	1.000	
6.Compliance Safety Behavior	0.389*	0.470**	0.255*	0.227*	0.670*	1.000

**Correlation is significant at 0.05 level (2-tailed)*

*** Correlation is significant at 0.01 level (2-tailed)*

4.6 **Multiple Liuear Regression**

Table 4.5 shows the Model Summary of analysis Regression Test. The R^2 value is a representative of the amount of variance in the dependent variable explained by the model. A larger R^2 indicates better predictive power of the model. The adjusted R-squared compares the explanatory power of regression models that contain different numbers of predictors. In addition, the adjusted R-squared is a modified version of R-squared that has been adjusted for the number of predictors in the model.

In this study, the adjusted R^2 value was 0.475 so 47.5% of the variation in factor work safety scale (WSS) can be explained by the model containing job safety, co-worker safety, supervisor safety, management practices, safety program and policies to the compliance safety behavior. The scatter plot of standardized predicted

value verses standardized residuals showed that the data met the assumptions of homogeneity of variance and linearity and the residuals were approximately normally distributed.

When factors that influence compliance safety behavior was predicted, it was found that job safety ($\beta = 0.581$, $p < 0.05$), supervisor safety ($\beta = 0.544$, $p < 0.05$), management safety practices ($\beta = 0.567$, $p < 0.05$) were significant predictors. Contrarily, co-worker safety ($\beta = 0.439$, $p = 0.388$) and safety program and policies ($\beta = 0.171$, $p = 0.067$) were not significant predictors. The overall model fit was adjusted $R^2 = 0.475$.

Table 4.5
Model Summary of Regression Result

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.697[a]	.486	.475	.21535

a. Predictors: (Constant), Job Safety, Co-worker Safety, Supervisor Safety, Management Safety and Practices, Safety Program and Policies.

Multiple Linear Regression was carried out to investigate the influence between the five dimensions of work safety scale on compliance safety behavior and the results are shown in table 4.6. The results of the regression indicated the five predictors explained 49% of the variance ($R^2 = .49$, $F(5, 4) = 0.755$, $p < 0.05$). It was reported that the influence between job safety and compliance safety behavior was significant ($\beta = 0.581$, $p < 0.05$). Co-worker safety and compliance to safety behavior were found not to have a significant influence ($\beta = 0.439$, $p > 0.05$).

The results showed that there was statistically significant coefficient of 0.544 at $p < 0.05$ on supervisor safety and compliance safety behavior. As for management

safety practices, it was reported that it does have a significant influence with compliance to safety behavior where $\beta = 0.567$ at $p < 0.05$. Results also has reported that there is no significant influence between safety program and policies with compliance to safety behavior ($\beta = 0.171$, $p > 0.05$).

Table 4.6
Summary of Multiple Linear Regression

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	6.467	5.822		1.111	.329
Job safety	.219	.167	.581	-1.312	.026
Co-worker safety	.540	.553	.439	-.976	.388
Supervisor safety	.704	1.191	.544	-.591	.035
Management safety practices	.699	1.023	.567	.683	.025
Safety program and policies	.300	.668	.171	.449	.067

a. Dependent Variable: Compliance Safety Behavior

4.7 Summary

Table 4.7 shows the summary of the research questions in this study. Multiple Linear Regression was executed in order to analyze followings research questions. Results reported that job safety, supervisor safety and management safety practices had positively significant with compliance safety behavior. On the other hand, Co-worker safety and safety program and policies were found to be not significant with compliance to safety behavior.

Table 4.7
Summary of Research Questions

No.	Research Questions	Test/analysis	Result
1.	Does job safety influence safety behavior?	Multiple Linear Regression	Positively significant relationship with compliance to safety behavior
2.	Does co-worker safety influence safety behavior?	Multiple Linear Regression	No significant relationship with compliance to safety behavior
3.	Does supervisor safety influence safety behavior?	Multiple Linear Regression	Positively significant relationship with compliance to safety behavior
4.	Does the management safety practices influence safety behavior?	Multiple Linear Regression	Positively significant relationship with compliance to safety behavior
5.	Is there a relationship between safety program and policies with compliance to safety behavior?	Multiple Linear Regression	No significant relationship with compliance to safety behavior

This study was a cross-sectional study and the questionnaires were self-administered by 103 respondents with a response rate of 95.4%. The association of five dimensions of work working scale (WSS) to the compliance to safety behavior has been reported in this chapter. It has shown that job safety, supervisor safety, management safety practices were factors that significantly influence WSS among the firefighters in Zone 5, Selangor. The results also reported that co-worker safety

and safety practices and policies were non significant factors that influence although it shown a fair strength of correlation. Therefore, the regression results reported that job safety, supervisor safety and management safety practices were significant predictors. The discussion of the results obtained will be further elaborated in chapter 5.

CHAPTER5

CONCLUSION AND RECOMMENDATION

5.1 Recapitulation Of The Study's Findings

The chapter mainly focuses on the review of the findings on the factors that influencing safety behavior in Malaysia Fire and Rescue Department. The research questions will be further elaborated and summarized. A brief on recommendations for the improvement in safety behavior among Malaysia firefighters will be further discussed. In addition, the research also found some of the recommendations for the issue and problem facing by the firefighters pertaining to safety behavior factors where it should be overcome.

5.2 Discussion

The factors that influencing safety behavior highlighted by the firefighters' personnel insight were explained by the obtained results. The demographic data have shown that there were a total of 103 respondents of whom firefighter's personnel from Fire and Rescue Department Zone 5, Selangor were participated in this study. The majority of respondents was came from the male counterpart which was 81.6% (n = 84) while only 18.4% (n=19) female respondents. It is expected that there was a major gender discrepancy in this study since the nature of the job require the personnel to involve with hazardous situations.

5.2.1 Research Objective 1: To examine the relationship between job safety in compliance with safety behavior

The job safety scales is intended to measure how employees perceive that the job safe in the accomplishment of the job performance. Job safety and compliance to safety behavior have shown that there was a fair correlation between job safety and compliance behavior ($r = 0.389$, $p < 0.05$). These results indicated that job safety is one of the factors that related to the compliance safety behavior among the firefighters since $p < 0.05$. In addition, the majority of respondents answered Likert scale 4 as agree to safety behavior questionnaire given.

The information provided by Moore-Merrell et al., (2008) reported that job safety are significantly correlated to compliance safety behaviors among firefighter in order to prevent injuries thus, supporting the findings in this study. As anticipated, gender differences were apparent on this variable where the female workers had favorable perceptions of job safety more often than their male counterparts. This might due to the different job specification among male and female firefighters. Studies have shown that unsafe behavior such as breaking safety procedures and not wearing proper protection clothing are demonstrated as source of injury at work (Surienty et al. 2011).

In addition, regression analysis has reported that the influence of job safety to compliance safety behavior was significant ($\beta = 0.581$, $p < 0.05$). Contrarily, researchers revealed that the firefighters did not wear their self-contained breathing apparatuses (SCBA) gear as long or as often as they should have and they were sometimes and took risks and careless (National Institute of Standards and Technology, 2004). In addition, Moore-Merrell et al. (2008) found that sources of

injuries were caused by plenty factors such as breeching of Standard Operation Procedures (SOP), lack of communication and lack of situational awareness that happened to firefighters who are on line of duty.

5.2.2 Research Objective 2: To determine the relationship between co-worker safety and compliance with safety behavior

Co-workers safety is the degree to which they are perceived to practice safe work behavior while working. There was a moderate correlation between co-worker safety and compliance to safety behavior ($r = 0.47$, $p = 0.17$). Results reported that supervisor safety variable correlated to the safety compliance behavior however it was not significantly correlated ($p > 0.05$). As a result, the majority of respondents answered Likert scale 4 as agree to safety behavior questionnaire given.

Result from regression analysis shown that co-worker safety and compliance to safety behavior were found not to have a significant influence ($\beta = 0.439$, $p > 0.05$). Previous research has reported to disagree with the result of current study where socialization has an effect on a worker's perception of safety behavior in several industries including police, healthcare, and utilities where co-worker safety can be improved in compliance to safety behavior (Mullen, 2004).

5.2.3 Research Objective 3: To determine the relationship between supervisor safety and compliance with safety behavior

Supervisor safety scale shows to what extent supervisor is perceived to demonstrate safety-related behavior at work. Supervisor safety and compliance safety behavior were found to have a correlation ($r = 0.255$, $p < 0.05$). On the

average, the firefighters choose scale 4 =*agree*, where they agreed that there is a relationship between supervisor safety and compliance safety behavior. This factor is crucial in order to build a supportive safety behavior that will promote a sense of belongingness and trust among the firefighters. Thus implementing these measures would be necessary.

Regression analysis has showed that there was statistically significant coefficient of 0.544 at $p < 0.05$ on supervisor safety and compliance safety behavior. The result of the current study was supported by several studies which have revealed that an improvement in supervisory safety practices significantly enhances employee's perception of safety behavior and consequently leads to higher levels of safety (Zohar 2002; Zohar & Luria 2003).

According to Maples et al. (1982), supervisors were themselves the trainees and were used to be forefront and evaluating the effects of hazard control practices. In another study, as part of the training supervisors were instructed either to increase their surveillance of safe work practices (Millican et al., 1981) or to consider staff compliance in performance assessments which consider safety behavior (Lynch et al., 1990). Research by Zohar & Luria (2004) reported that supervisors act as official agents of the organization and have the most regular interaction with their subordinates. This makes them an ideal person to communicate and enforcing organizational objectives to employees.

5.2.4 Research Objective 4: To determine the relationship between the management safety practices and safety behavior.

The management safety practices scale is projected the extent to which management is perceived to develop safety culture at work. A correlation on management safety practices and safety behavior was analyzed and found that there was a relationship between these variables ($r = 0.227$, $p < 0.05$). Thus the result agreed that management applied safety practices which will be requirement for compliance with safety behavior .It was recorded that on average the firefighters choose scale 4 =*agree* as to the management safety policies and compliance safety behavior where. Ali et al. (2009) has studied on six management practices namely communication and feedback, management commitment, hiring practices, training, reward, and employee participation with the injury rate and has concluded that all these parameter are correlated to each other.

In addition, regression analysis was reported that management safety practices does have a significant influence with compliance to safety behavior where $\beta = 0.567$ at $p < 0.05$. Previous study has shown that upper management commitment is a critical element in successful safety programs in compliance to safety behavior (Cohen 1977; Zohar 1980) thus supporting results of current study. Similarly to Jones (2008), the ineffectiveness or absence of any aspects in management safety could be a significant causation factor in injuries. Moreover, Jones (2008) mentioned that the organization is responsible for instruction, supervision, protective equipment and training in order to reduce and comply with safety behavior.

Vinodkumar and Bhasi (2010) stated that practices of drafting a written safety policy as well as providing awareness programs and training by the management will

demonstrated towards safety practices. An individual wisdom by the employees is a result of direct influence of management commitment on safety compliance in order to increase safety and protect themselves from misfortunes.

5.2.5 Research Objective 5: To determine the relationship between the safety program and policies with compliance to safety behavior

Safety program and policies are measured the degree of safety program conducted is perceived to satisfactory. Safety program and policies have been reported to have a strong correlation to the compliance safety behavior ($r = 0.67$, $p < 0.05$). This result has proven that safety program and policies are important factor that related to compliance to safety behavior since the study is significantly strong correlated. On average the firefighter choose scale 4 =*agree* where they observed that safety program and policies were factors strongly related to compliance safety behavior.

In contrast, results from regression analysis has reported that there is no significant between safety program and policies with compliance to safety behavior ($\beta = 0.171$, $p > 0.05$). Study by Vinodkumar and Bhasi (2010) have shown similarity in results where it turned out that the items in safety promotion policies scale could not capture the intentions. Contrarily, the results of the current study was opposite to the findings reported by Mukherjee et al. (2000) where 84% of the employees recognize hazardous chemicals easier after attending the safety training and 73% of the employees seldom to discuss about safety and health after attending the training thus, increasing compliance to safety behavior.

In addition there were some other studies that shown dissimilarity to the findings on current study. In a large scale of study, 80 studies was drawn out from the period of 1980 to 1996 where training interventions were used for the purposes of decreasing risks to specific types of workplace hazards, it was reported that that safety program and policy was a solution to reducing injuries and accident at workplace(Cohen & Colligan, 1998). Moreover, some previous studies have also recorded that policies (Mullen 2004) and program are strong predictors of safety behavior compliance.

5.3 Correlation between WSS and Compliance with Safety Behavior

A correlation of WSS dimensions has been showing that there were significant correlation for job safety, supervisor safety and management safety practices in compliance to safety behavior where r = 0.389, r = 0.255 and r = 0.227 respectively. In contrast, there were a medium correlation of co-workers safety (r= 0.47) and strong correlation on management safety practices (r = 0.67) in compliance to safety behavior. However statistical analysis have shown that co-worker safety was not significantly correlated with safety behavior where p value is greater than 0.05.

The safety behavior compliance levels of respondents were measured in order to determine their scale of compliance to safety behavior. The result obtained shown the level of compliance to safety behavior among firefighters was rated at scale 4 = *agree* with the mean of 4.48±0.46. It was concluded that the firefighters are agreed to follow all safety procedure regardless of situations and handle all situation as if there is a possibility of having an accident. On the other hand, they seldom overlook safety

procedures, take shortcuts to safe working behavior in order to get the job faster and do not follow a safety rule that is unnecessary.

5.4 Multiple Linear Regression

Multiple linear regression analysis was used to test if the work safety scale (WSS) dimensions significantly predicted the compliance safety behavior. The results of the regression indicated the five predictors explained 49% of the variance (R^2= .49, F (5, 4) = 0.755, p <0.05). It was found that the job safety (β =0.581, p <0.05), supervisor safety (β = 0.544, p <0.05), management safety practices (β = 0.567, p <0.05) were significantly predicted compliance to safety behavior. On the other hand, co-worker safety (β = 0.439, p > 0.05) and safety program and policies (β = 0.439, p > 0.05) were not significantly with compliance to safety behavior.

5.5 Recommendations for Future Study

This study was conducted within a small sample size of 103 as compared to the overall population of the active personnel in Malaysian Fire and Rescue Department. Therefore the result could not provide as a good representative data to the whole firefighters' population. Therefore, in advance a larger and more heterogeneous sample size would strengthen the conclusions of this study substantively. In addition, there are constraints in research time where time for data collection and analysis were short. Apart from that this study is limited by its reliance on self-reported instruments. Thus, the findings may be biased by participants' desire to respond in a consistent manner.

The gender discrepancy also was the found to be factors that affect the results since number of female was rather smaller as compared to their counterpart. It is suggested to study on the perception of WSS (Work Safety Scale) based on gender, education level and length of service among Malaysian firefighters in the future for the improvement of their overall service.

Finding from this research suggested that filling the gap between WSS (Work Safety Scale) and compliance to safety behavior should be continue in order to reduce injuries during performing duties. In addition, the inter-connected relationship between quality management systems and safety calls for further investigation, both from an operational perspective as well as administrative point of view. In future it is hoped that implementing these measures will contribute to develop a supportive climate that will promote a sense of working safety in the organization thus improving the safety behavior.

In addition to the five independent variables discussed, the study should also examine how leadership aspect would influence the safety behavior because leaders can have a great impact on their officers by correcting unsafe behavior and taking a personal interest in each firefighter's life. Therefore, it would have been more comprehensive to study leadership as another independent variable in the study.

REFERENCES

Ajzen, I. 1991. The Theory Of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211.

Ali, H., Abdullah, N.A.C. & Subramaniam, C. (2009). Management Practice In Safety Culture And Its Influence On Workplace Injury. *Disaster Prevention and Management*, 18, 470-477.

Aziz, S. H. S. (2012). Factors Influencing Safety Behavior in the Malaysian Army. Retrieved from http://etd.uum.edu.my/3022/.[accessed Jun 03 2018].

Annual Report Fire And Rescue Department Of Malaysian, FRDM , (2014). Retrieved from http://fram.bomba.gov.my/wilayahtimur/index.php/en/media-publishing/annual-report.[accessed Jun 03 2018].

Bob E. Hayes, Jill Perander, Tara Smecko, and Jennifer Trask, (1998).Measuring Perceptions of Workplace Safety: Development and Validation of the Work Safety Scale. *Journal of Safety Research*, 29 (3), 145–16.

Blau PM. (1964). Exchange and Power In Social Life. New York, NY, USA: Wiley.

Brennan, C. (2011). The Combat Position: Achieving Firefighter Readiness. Tulsa, OK: Pennwell.

Bruni, J. V., Jr. (2012). Occupational Health and Safety for the Fire Service. Upper Saddle River, NJ: Pearson.

Christian MS, Bradley JC, Wallace JC,Burke MJ. (2009). Workplace Safety: A Meta-Analysis of The Roles Of Person And Situation Factors. *Journal of Applied Psychology*, 94(5):1103–27.

Clarke, S., & Ward, K. (2006). The Role of Leader Influence Tactics and Safety Climate In Engaging Employees' Safety Participation. *Risk Analysis* 26, 1175-1185.

Cooper M.D, R.A Phillips (2004). Exploratory Analysis of The Safety Climate And Safety Behavior Relationship. *Journal of Safety Research,* 35, 497– 512.

Cohen, A. (1977). Factors in Successful Occupational Safety Programs, *Journal of Safety Research, 9(4),* 168-178.

Cohen, A., & Colligan, M. J. (1998). Assessing Occupational Safety and Health Training: A Literature Review. Cincinnati, OH: National Institute for Occupational Safety and Health. (Report No. 98145)

Dejoy, D.M., Schaffer, B.S., Wilson, M.G., Vandenberg, R.J. & Butts, M.M. (2004). Creating safer workplace: Assessing The Determinants and Role of Safety Climate, *Journal of Safety Research, 35(1),* 81-90.

Edrak. B, Yin- Fah. B.C., Gharleghi. B, & Seng.T.K (2013). The Effectiveness of Intrinsic and Extrinsic Motivations: A Study of Malaysian Amway Company's Direct Sales Forces. *International Journal of Business and Social Science, 4* (9), 96-103.

Fahy, R., LeBlanc, P., & Molis, J. (2010). Firefighter Fatalities In The United States- 2009.Retrieved on September 17, 2010. Retrieved from www.nfpa.org.[acesssed on Jun 2018 03].

Freaney, C. (2011). Safety Culture and Safety Behaviors Among Firefighters. 5, 12-23

Gyekye SA, Salminen S. (2007). Workplace Safety Perceptions And Perceived Organizational Support: Do Supportive Perceptions Influence Safety Perceptions. *International Journal of Occupational Safety and Ergonomics (JOSE)*; 13(2):189–200.

Gyeke, A.S., Salminen, S. (2009). Educational Status and Organizational Safety Climate: Does educational Attainment Influence Workers' Perceptions of Workplace Safety? *Science Direct*, 40, .20-28.

Gyekye, S.A & Haybatollahi.M. (2014). Relationship Between Organizational Justice and Organizational Safety Climate: Do Fairness Perceptions Influence Employee Safety Behavior? *International Journal of Occupational Safety and Ergonomics*, 20 (2), 199-211.

Hair. J. F., Money. A.H., Samouel. P.& Page. M.(2007). *Methods for Business*. Chichester, West Sussex: John Wiley & Sons, Inc

Hayes BE, Parender J, Smecko T, Trask J. 1998.Measuring Perceptions Of Workplace Safety: Development And Validation Of The Work Safety Scale. *Journal of Safety Research*, 29, 145–161.

Hayes, B.E, Perander, J, Smecko, T. &Trask,J. (2000). Measuring Perceptions ofWorkplaceSafety: Development and Validation of the Work Safety Scale. *Journal of Safety Research*, 29, 101-120.

Hofmann DA, Morgerson FP. (1999). Safety-Related Behavior as A Social Exchange: The Role Of Perceived Organizational Support And Leader–Member Exchange. *Journal of Applied Psychology*, 84 (2), 286-296.

Hofmann & Morgeson(2010). Safety at Work: A Meta-Analytic Investigation of the Link Between Job Demands, Job Resources, Burnout, Engagement, and Safety Outcomes. *Journal of Applied Psychology*, 21 ,13-17.

Heinrich, H. W. (1950). *Industrial Accident Prevention*: A scientific approach (3rd.). New York: Mc Graw-Hill.

Ishak. A., La.O. B. A., & Sri. W. M. (2016). The Effect of Job Satisfaction, Integrity and Motivation on Performance. *The International Journal of Engineering and Science (IJES),* 5, 601-631.

Jones, M. (2008). Reducing Firefighter Deaths and Injuries: Changes in Concept, Policy, and Practice. Symposium conducted as a public service of the Public Entity Risk Institute (PERI).

Johnson, S. E. (2003). Behavioral Safety Theory Professional Safety. *Safety Science,* 48, 39-44.

Krecjie, R.V, & Morgan, D.W (1970). Determining sample for research activities. *Educational and psychological measurement,* 30, 607-610.

Locke E. A. (1969). What Is Job Satisfaction? Organization Behavioral Human Performance. *Journal of Applied Psychology,* 4, 309–360

Lund, J., & Aaro, L. E. (2009). Accident Prevention. Presentation Of A Model Placing Emphasis On Human, Structural And Cultural Factors. *Safety Science,* 42 , 271-324.

Lynch, P., Cummings, M. J., Roberts, P. L., Herriott, M. J., Yates, B., & Stamm, W. E. (1990). Implementing and Evaluating A System Of Generic Infection Precautions: Body Substance Isolation. *American Journal of Infection Control,* 18, 1-12.

Maples, T. W., Jacoby, J. A., Johnson, D. E., Ter Haar, G. L., 6k Buckingham, F. M. (1982). Effectiveness Of Employee Training And Motivation Programs In Reducing Exposure To Inorganic Lead And Lead Alkyls. *American Industrial Hygiene Association Journal,* 43, 692-694.

Melius, J., (2001). Occupational Health for Firefighters. *Journal of Occupational Medicine,* 16, 101-108

Millican, R., Baker, R. C., & Cook, G. T. (1981). Controlling Heat Stress: Administrative Versus Physical Control. *American Industrial Hygiene* Association *Journal,* 42, 411-416.

Moore-Merrell, L., Zhou, A., McDonald-Valentine, S., Goldstein, R., & Slocum, C. 2008. Contributing Factors to Firefighter Line-Of-Duty Injury In Metropolitan Fire Departments in the United States. United States Fire Association.

Morrow, S.L., McGonagle, A.K., Dove-Steinkamp, M.L., Walker, C.T., Marmet, M., & Barnes-Farrell, J.L. (2010). Relationships Between Psychological Safety Climate Facets And Safety Behavior In The Rail Industry: A dominance analysis. *Accident Analysis and Prevention* 42,1460-1467.

Mukherjee, S., Overman, L., Leviton, L., & Hilyer, B. (2000). Evaluating of Worker Safety and Health Training. *American Journal of Industrial Medicine.* 38: 155–163.

Mullen, J. (2004). Investigating Factors That Influence Individual Safety Behavior At Work. *Journal of Safety Research,* 35(13), 275-285.

National Institute of Standards and Technology (2004). The Economic Consequences of Firefighter Injuries and Their Prevention. Prepared by TriData Corporation, 1-58.

Naveh, E., Katz-Navon, T., & Stern, Z. 2005. Treatment Errors In Healthcare: A Safety Climate Approach. *Management Science,* 51,948-960.

Neal A, Griffin MA, Hart P.M. (2000). The Impact of Organizational Climate On Safety Climate And Individual Behavior. *Safety Science,* 44-59.

Siti. Z.A. B. (2016). Factors Affecting Job Motivation Among Generation Yin Co-Operative Sector. *University Utara Malaysia*

Sivabalan. B. (2015). The Impact of Motivation, Job Satisfaction and Training on Turnover Intention in CIMB. *University Utara Malaysia (UUM).*

Smith, T. D., & DeJoy, D. M. (2014). Safety Climate, Safety Behaviors and Line-of-Duty Injuries in the Fire Service. *International Journal of Emergency Services, 3*(1),

Society, A., & Agricultural, O. F. (1985). *American Society Journal, 92*(85), 1–13.

Surienty, Lilis & Teng Hong, Khoo & Kee, Daisy. 2011. Occupational Safety And Health (OSH) in SMEs In Malaysia: A Preliminary Investigation. *Journal of Global Entrepreneurship.* 1.-25.

Szubert, Z. & Sobala, W. (2002). Work-Related Injuries Among Firefighters: Sites and Circumstances of their Occurrence. *International Journal of Occupational Medicine and Environmental Health,* 15 (1), 49-55.

Thompson, R.C., Hilton, T.F., & Witt, L.A. 1998. Where The Safety Rubber Meets The Shop Floor: A confirmatory model of management influence on workplace safety. *Journal of Safety Research,* 29 (I), 15-24.

Tavares, R.M. (2010). An Analysis Of The Fire Safety Codes In Brazil: Is The Performance Based Approach The Best Practice, *Fire Safety Journal,* 44,749–755.

Tavakol, M. and Dennick, R. (201 I). Making Sense of Cronbach's Alpha. *International Journal of Medical Education.* 2,53-55.

U.S. Fire Administration (2008). Fire-Related Firefighter Injuries in 2004. Retrieved from: www.usfa.dhs.gov/downloads/pdf/publications/2004_ff_injuries.pdf. [accessed September 2018, 26].

U.S. Fire Administration (2015). National Safety Culture Change Initiative. Study of Behavioral Motivation on Reduction of Risk-Taking Behaviors in the Fire and Emergency Service.]

Retrieved www. usfa. hema. gov/downloads/pdf/publications/fa_342.pdf. [accessed Jun 2018,1].

Varonen, U. and Mattila, M. (2000). The Safety Climate And Its Relationship To SafetyPractices, Safety Of The Work Environment And Occupational Accidents In Eight Wood Processing Companies, *Accident Analysis and Prevention*, 32,761–769.

Varonen, U. and Mattila, M. (2012). The Safety Climate And Its Relationship To SafetyPractices, Safety Of The Work Environment And Occupational Accidents In Eight Wood-Processing Companies, *Accident Analysis and Prevention*. 5, 71-83.

Veazie, K., Landen, D., Bender, T. and Amandus, H. (1994). Epidemiological Research On The Aetiology Of Injuries At Work. *Annual Review of Public Health*, 15,203 - 221.

Vinodkumar, M.N., Bhasi, M., 2010. Safety Climate Factors and Its Relationship With Accidents And Personal Attributes In The Chemical Industry. *Safety Science* 47, 659–667.

Welbourne, J., & Booth-Butterfield, S. (2005). Using The Theory Of Planned Behavior And A Stage Model Of Persuasion To Evaluate A Safety Message For Firefighters. *Health Communications*, 18, 141-154.

Williams, A. (2007). Safety Culture Within the Anne Arundel County Fire Department. United States Fire Administration. Retrieved from http://www.usfa.dhs.gov/nfa/efop/applied_research/abstracts/tr_06aw.shtm. Retrieved on March 20, 2010.

Williams, A. (2008). Executive Analysis of Fire Service Operations in Emergency Management: Validating a Safety Culture Survey. Maryland Fire and Rescue Institute, College Park, Maryland.

Windham, R. (2005). A Baseline Measurement of The Woodlands Fire Department's Safety Culture.
Retrieved from http://www.usfa.dhs.gov/pdf/efop/efo38332.pdf, Retrieved on May 5, 2018.

Wu Tsung-Chih, Chen Chi-Hsiang , Li Chin-Chung .(2007). Correlation Among Safety Leadership, Safety Climate And Safety Performance. *Journal of Loss Prevention in the Process Industries* 21,307-318

Zohar D. 1980.Safety Climate In Industrial Organizations: Theoretical And Applied Implications. *Journal of Applied Psychology*.,65(1):96–102.

Zohar, D. 2000. A group-level model of safety climate: testing the effect of group climate on microaccidents in manufacturing jobs. *Journal of Applied Psychology*, 85(4), 587-596.

Zohar, D. 2002. Modifying Supervisory Practices to Improve Subunit Safety: A Leadership-Based Intervention Model, *Journal of Applied Psychology, 87(1),* 156-163.

Zohar, D. & Luria, G. 2003. The Use Of Supervisory Practices As Leverage To Improve Safety Behavior: A Cross-Level Intervention Model, *Journal of Safety Research, 34(5),* 567-577.

Zohar, D. & Luria, G. 2004. Climate as a Social-Cognitive Construction of Supervisory Safety Practices: Scripts as Proxy of Behavior Patterns, *Journal of Applied Psychology, 89(2),* 322-333.

Zikmund. W.G. (2003). *Business Research Method,* 7th Edition, South Western, US.

Zikmund. W.G., Babin. B.J., Carr. J.C., Adhikari. A., & Griffin. M. (2014). Business Research Methods. *A South-Asian Perspective.* 8th Edition, India.

APPENDIX

UNIVERSITI UTARA MALAYSIA

Tarikh: July 2018

Tuan/Puan:

Kajian Kepatuhan Perilaku Keselamatan

Tujuan surat ini adalah untuk mendapatkan keizinan tuan/puan untuk melibatkan diri dalam kajian yang berkaitan dengan kepatuhan perilaku keselamatan di tempat kerja. Kajian adalah untuk mengenal pasti faktor-faktor yang mempengaruhi perilaku tersebut. Maklumat ini berguna kepada penyelidik, Jabatan Bomba Dan Penyelamat Malaysia untuk menjalankan usaha-usaha mengurangkan kecederaan dan kemalangan di tempat kerja.

Kami ingin mendapatkan kerjasama tuan/puan untuk mengisi borang soal selidik yang dikepilkan. Soal selidik ini hanya akan mengambil masa 15 minit untuk diisi. Walaupun kerjasama dan penglibatan tuan/puan amat bermakna buat penyelidikan ini, namun penglibatan tuan/puan dalam kajian ini adalah secara suka rela. Tuan/puan boleh menarik diri daripada kajian ini pada bila-bila masa.

Kami juga memberi jaminan bahawa identiti dan jawapan yang tuan/puan beri akan dirahsiakan dan tidak akan didedahkan kepada mana-mana pihak.

Kami mengucapkan berbanyak-banyak terima kasih alas kerjasama dan kesudian tuan/puan melibatkan diri dengan kajian ini. Sekian, terima kasih.

Yang benar,

Vivekananda A/L Rajalingam
Nombor Matriks Pelajar: 820095

Bahagian A: Maklumat Demografi

Section A: Demographic Information

Sila tandai (✓) pada ruangan yang sesuai atau isi pada tempat kosong, yang mana sesuai.
Please check (□) in the appropriate box or fill in the blank, where appropriate.

1. Jantina anda (*Gender*):
❑Lelaki (*Male*)
❑Perempuan (*Female*)

2. Taraf perkahwinan anda (*Your marital status*):
❑ Bujang (*Single*)
❑ Berkahwin (*Married*)
❑ Janda/duda/bercerai (*Divorced/Widowed*)

3. Tahap pendidikan tertinggi anda (*Your highest educational level*):
❑ LCE/SRP/PMR
❑ MCE/SPM/SPMV
❑ HSC/STPM
❑ Diploma/ Ijazah
❑ Lain-lain, sila nyatakan (*Others, please specify*):

_____

4. Bangsa (*Race*):
❑ Melayu (*Malay*)
❑ Cina (*Chinese*)
❑ India (*Indian*)
❑ Lain-lain, sila nyatakan (*Others, please specify*):

_____

5. Umur anda (*Your age*):
_____ tahun (*years*)

6. Apakah jawatan dan kategori gred anda sekarang?
❑ Pegawai Bomba (KB 19)
❑ Pegawai Bomba Kanan II (KB 22)
❑ Pegawai Bomba Kanan 1 (KB 24)
❑ Pegawai Bomba Tinggi (KB 26)
❑ Pegawai Kanan (KB 29 –KB 38)

7. Sudah berapa lama anda berkhidmat dengan Jabatan Bomba Dan Penyelamat Malaysia? (*How long have you been working with the Fire And Rescue Department Of Malaysia ?*)
_____ tahun (*years*)

8. Apakah tugas yang dipertanggungjawabkan kepada anda di balai?
❑Bahagian Operasi (*Operational*)
❑ pemandu Jentera (*Driver*)
❑Penyelia Pasukan (Crew Supervisor)
❑Ketua Balai (*Officer In Charge*)
❑Bahagian Pentadbiran (Administration)

9. Dalam tempoh lima tahun akan datang, adakah anda fikir anda akan terus bekerja dengan Jabatan Bomba Dan Penyelamat Malaysia? (*In five years from now, do you think you will continue working with the Fire And Rescue Department Of Malaysia?)*
❑ Ya (*Yes*) ❑ Tidak (*No*)

10. Adakah anda berpuas hati dengan pekerjaan anda sekarang?
❑ Sangat berpuas hati (*Very satisfied*)❑ Tidak berpuas hati (*Dissatisfied*)
❑ Sangat tidak berpuas hati (*Very dissatisfied*)❑ Berpuas hati (*Satisfied*)

SOAL SELIDIK KESELAMATAN DI TEMPAT KERJA
(SURVEY OF WORKPLACE SAFETY)

Bahagian B: Keselamatan Kerja

Section B: Job Safety

Fikirkan tentang pekerjaan anda. Sejauh mana anda bersetuju atau tidak bersetuju sama ada setiap kenyataan di bawah menggambarkan kerja yang anda lakukan sekarang? **Bulatkan** jawapan anda berpandukan skala di atas.

(Think about your job. To what extent you agree or disagree whether each statement below describes your job? ***Circle*** *your answer using the scale below).*

Sangat tidak setuju (*Strongly disagree*)	Tidak setuju (*Disagree*)	Berkecuali (*Neither agree nor disagree*)	Setuju (*Agree*)	Sangat setuju (*Strongly agree*)
1	2	3	4	5

1	Kerja saya berbahaya (*My job is dangerous*)	1	2	3	4	5
2	Kerja saya selamat (*My job is safe*)	1	2	3	4	5
3	Kerja saya mengundang ancaman (*My job is hazardous*)	1	2	3	4	5
4	Kerja saya berisiko (*My job is risky*)	1	2	3	4	5
5	Kerja saya tidak menyihatkan (*My work is unhealthy*)	1	2	3	4	5
6	Dalam kerja saya, saya mudah tercedera (*I could get hurt easily in my job*)	1	2	3	4	5
7	Kerja saya tidak selamat (*My job is unsafe*)	1	2	3	4	5
8	Semasa melakukan kerja saya, saya bimbang kesihatan saya akan terjejas (*I fear for my health in my job*)	1	2	3	4	5
9	Saya terdedah pada kematian dalam kerja saya (*There is a chance of death in my job*)	1	2	3	4	5
10	Kerja saya menakutkan (*My job is scary*)	1	2	3	4	5

Bahagian C: Keselamatan Rakan Sekerja

Section C: Co-worker Safety

Fikirkan tentang rakan sekerja anda. Sejauh mana anda bersetuju atau tidak bersetuju samaada setiap kenyataan di bawah menggambarkan rakan sekerja anda? **Bulatkan** jawapan anda berpandukan skala di atas.

(*Think about the people you work with. To what extent you agree or disagree whether each statement below describes these people?* ***Circle your answer using the scale below***).

Sangat tidak setuju (*Strongly disagree*)	Tidak setuju (*Disagree*)	Berkecuali (*Neither agree nor disagree*)	Setuju (*Agree*)	Sangat setuju (*Strongly agree*)
1	2	3	4	5

	Rakan sekerja saya ... (*My co-workers ...*)					
1	Mengabaikan peraturan keselamatan (*Ignore safety rules*)	1	2	3	4	5
2	Tidak mempedulikan keselamatan orang lain (*Don't care about others' safety*)	1	2	3	4	5
3	Memberi perhatian pada peraturan keselamatan (*Pay attention to safety rules*)	1	2	3	4	5
4	Mematuhi peraturan keselamatan (*My co-workers follow safety rules*)	1	2	3	4	5
5	Mengambil berat keselamatan orang lain (*My co-workers look out for others' safety*)	1	2	3	4	5
6	Menggalakkan orang lain bekerja dengan selamat (*Encourage others to be safe*)	1	2	3	4	5
7	Tidak menitikberatkan soal keselamatan (*Take chances with safety*)	1	2	3	4	5
8	Memastikan tempat kerja bersih (*Keep work area clean*)	1	2	3	4	5
9	Berorientasikan keselamatan (*Safety-oriented*)	1	2	3	4	5
10	Tidak menumpukan perhatian semasa bekerja (*Don't pay attention at work*)	1	2	3	4	5

Bahagian D: Keselamatan Penyelia

Section D: Supervisor Safety

Fikirkan tentang penyelia terdekat anda. Sejauh mana anda bersetuju atau tidak bersetujusama ada setiap kenyataan di bawah menggambarkan penyelia terdekat anda? **Bulatkan**jawapan anda berpandukan skala di atas.

(*Think about your immediate supervisor. To what extent you agree or disagree whether each statement below describes your immediate supervisor? **Circle** your answer using the scale below*).

Sangat tidak setuju (*Strongly disagree*)	Tidak setuju (*Disagree*)	Berkecuali (*Neither agree nor disagree*)	Setuju (*Agree*)	Sangat setuju (*Strongly agree*)
1	2	3	4	5

	Penyelia pasukan saya ... (*My crew supervisor ...*)					
1	Memuji peri laku kerja yang selamat (*Praises safe work behaviors*)	1	2	3	4	5
2	Menggalakkan peri laku selamat (*Encourage safe behaviors*)	1	2	3	4	5
3	Sentiasa memaklumkan peraturan keselamatan kepada pekerja (*Keep workers informed of safety rules*)	1	2	3	4	5
4	Memberi ganjaran terhadap peri laku selamat (*Rewards safe behaviors*)	1	2	3	4	5
5	Melibatkan pekerja dalam menetapkan matlamat keselamatan (*Involves workers in setting safety goals*)	1	2	3	4	5
6	Berbincang isu keselamatan dengan orang lain (*Discusses safety issues with others*)	1	2	3	4	5
7	Mengemas kini peraturan keselamatan (*Updates safety rules*)	1	2	3	4	5
8	Memberi latihan keselamatan kepada anggota (*Trains workers to be safe*)	1	2	3	4	5
9	Menguat kuasa peraturan keselamatan (*Enforces safety rules*)	1	2	3	4	5
10	Mengambil tindakan cadangan keselamatan (*Acts on safety suggestions*)	1	2	3	4	5

Bahagian E: Amalan Keselamatan oleh Pengurusan

Section E: Management Safety Practices

Fikirkan tentang pihak pengurusan anda. Sejauh mana anda bersetuju atau tidak bersetujusama ada setiap kenyataan di bawah menggambarkan pengurusan anda? **Bulatkan**jawapan anda berpandukan skala di atas.

*(**Think** about your management. To what extent you agree or disagree whether each **statement** below describes your management? **Circle** your answer using the scale below).*

Sangat tidak setuju (*Strongly disagree*)	Tidak setuju (*Disagree*)	Berkecuali (*Neither agree nor disagree*)	Setuju (*Agree*)	Sangat setuju (*Strongly agree*)
1	2	3	4	5

	Pihak pengurusan ... (Management ...)					
1	Menyediakan program-program keselamatan yang mencukupi (*Provide enough safety programs*)	1	2	3	4	5
2	Sering membuat pemeriksaan keselamatan (*Conduct frequent safety inspections*)	1	2	3	4	5
3	Segera menyiasat masalah keselamatan (*Investigates safety problems quickly*)	1	2	3	4	5
4	Memberikan ganjaran kepada anggota yang bekerja secara selamat (*Rewards safe workers*)	1	2	3	4	5
5	Menyediakan peralatan keselamatan (*Provides safe equipment*)	1	2	3	4	5
6	Menyediakan tempat kerja yang selamat (*Provide safe working conditions*)	1	2	3	4	5
7	Cepat bertindak balas terhadap perkara-pekara yang berkait dengan keselamatan (*Respond quickly to safety concerns*)	1	2	3	4	5
8	Sentiasa membantu mengekalkan kebersihan tempat kerja (*Helps maintain clean work area*)	1	2	3	4	5
9	Menyediakan maklumat berkaitan keselamatan (*Provides safety information*)	1	2	3	4	5
10	Sentiasa mewar-warkan keadaan berbahaya kepada anggota (*Keeps members informed of hazards*)	1	2	3	4	5

Bahagian F: Program dan Polisi Keselamatan

Section F: Safety Program and Policies

Fikirkan tentang pelaksanaan program keselamatan di tempat kerja anda. Sejauh manaanda bersetuju atau tidak bersetuju sama ada setiap kenyataan di bawah menggambarkanprogram tersebut? **Bulatkan** jawapan anda berpandukan skala di atas.

*(Think about safety programs at your workplace. To what extent you agree or disagreewhether each statement below describes these safety programs? **Circle** your answer using the scale above).*

Sangat tidak setuju (*Strongly disagree*)	Tidak setuju (*Disagree*)	Berkecuali (*Neither agree nor disagree*)	Setuju (*Agree*)	Sangat setuju (*Strongly agree*)
1	2	3	4	5

	Program keselamatan di tempat kerja saya ... (*Safety programs at my workplace is ...*)					
1	Bermanfaat (*Worthwhile*)	1	2	3	4	5
2	Membantu mencegah kemalangan (*Helps prevent accident*)	1	2	3	4	5
3	Berfaedah (*Useful*)	1	2	3	4	5
4	Bagus (*Good*)	1	2	3	4	5
5	Terbaik (*First-rate*)	1	2	3	4	5
6	Tidak jelas (*Unclear*)	1	2	3	4	5
7	Penting (*Important*)	1	2	3	4	5
8	Berkesan mengurangkan kecederaan (*Effective in reducing injuries*)	1	2	3	4	5
9	Tidak boleh dilaksanakan di tempat kerja saya (*Doesn't apply to my workplace*)	1	2	3	4	5
10	Tidak berfaedah (*Does not work*)	1	2	3	4	5

Bahagian G : Kepatuhan Perilaku Selamat

***Section G:* Compliance Safety Behavior**

Fikirkan tentang pekerjaan semasa anda. Dengan menggunakan skala di bawah, sila **bulatkan**kenyataan yang paling memerihalkan anda.

(*Think about your current job. Using the scale below, please* ***circle*** *the statement that best described you*).

Tidak pernah (*Never*)	Jarang-jarang (*Seldom*)	Kadangkala (*Sometimes*)	Kerap kali (*Often*)	Selalu (*Always*)
1	2	3	4	5

1	Saya terlepas pandang prosedur keselamatan agar tugas dapat diselesaikan dengan lebih cepat. (*I overlook safety procedures in order to get job done more quickly*).	1	2	3	4	5
2	Saya mematuhi segala prosedur keselamatan tanpamengendahkan situasi yang sedang dihadapi. (*I follow all safety procedures regardless of the situation I am in*).	1	2	3	4	5
3	Saya menangani semua situasi dengan andaian kemalangan akanberlaku.(*I handle all situations as if there is a possibility of having an accident*).	1	2	3	4	5
4	Saya menggunakan semua alat keselamatan seperti yangditetapkan.(*I wear safety equipment required by practice*).	1	2	3	4	5
5	Saya memastikan kawasan tempat kerja bersih. (*I keep my work area clean*).	1	2	3	4	5
6	Saya menggalakkan rakan-rakan sekerja agar bekerja dengan selamat.(*I encourage co-workers to be safe*).	1	2	3	4	5
7	Saya memastikan semua peralatan kerja berada dalam keadaan selamat.(*I keep my work equipment in safe working condition*).	1	2	3	4	5
8	Saya tidak begitu mengendahkan perilaku selamat agar kerjadapat diselesaikan dengan segera. (*I take shortcuts to safe working behaviors in order to get the job done faster*).	1	2	3	4	5
9	Saya tidak mematuhi peraturan keselamatan yang saya rasa tidakperlu. (*I do not follow safety rules that I think are unnecessary*).	1	2	3	4	5
10	Saya melapor kepada penyelia masalah keselamatan apabila saya menemuinya. (*I report safety problems to my supervisor when I see safety problem*).	1	2	3	4	5
11	Saya membetulkan masalah keselamatan bagi memastikankemalangan tidak berlaku. (*I correct safety problems to ensure accidents will not occur*).	1	2	3	4	5

KAJI SELIDIK TAMAT (END OF QUESTIONNAIRE)
TERIMA KASIH (THANK YOU)